# PULP & PAPER

# WORLD REVIEW NUMBER ... 1956

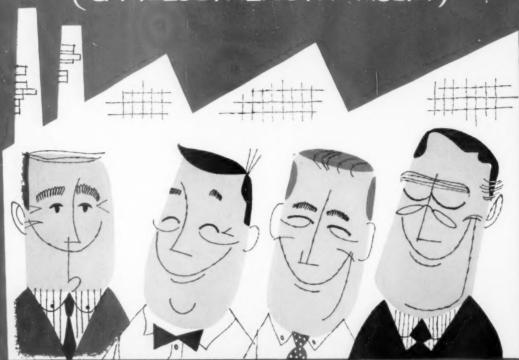
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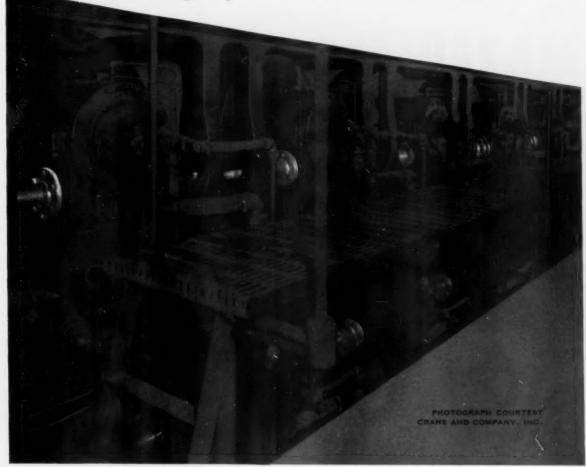
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#### ROUND THE WORLD STATISTICS AND SUMMARY

PULP & PAPER's own summary of statistics from every country in the world, Free World compared to Red World

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OUR COVER PICTURE-In Pakistan, an ancient country but a new republic, with a brand new paper industry, paper counting is done exactly as it is done in the most modern mills of the new nations of the West. It is counted by hand as this elderly man is doing in a Pakistani paper mill. In America and Europe it still is done in many mills by human hand and an eagle eye.



# 'ROUND THE WORLD ...

Paper Production—1953, 1954, 1955. Pulp Production—1954, 1955. Per Capita Paper Consumption—1955, Compiled by PULP & PAPER from Direct Reports from more than 50 Countries and Territories. (Copyright, 1956)

		Per Capita					
		Consumption			UCTION—In SI		-
	Population	Paper in 1955 (in lbs.)	Pulp 1954	Pulp 1955	Paper 1953	Paper 1954	Paper 1955
United States	167,000,000	418	18,333,153	20,837,562	26,458,000	26,656,631	29,883,060
Canada	15,000,000	280	9,419,538	9,567,414	5,707,000	6,753,398	7,170,360
Britain	50,968,000	187	157,969	155,746	1,668,300	3,391,000	3,646,965
West Germany	52,300,000	121	1,389,466	1,460,195	2,170,000	2,537,088	2,772,816
Japan	89,276,000	52.5	1,790,895	2,102,705	1,941,000	2,118,711	2,429,064
France	43,140,000	94	784,300	823,100	1,573,000	1,778,600	1,972,850
Sweden	7,290,112	200	3,971,000	4,258,000	1,348,000	1,536,000	1,647,000
Finland	4,300,000	124	2,660,000	3,025,000	1,156,000	1,215,000	1,434,000
Italy	49,000,000	35	340,006	388,361	731,500	812,184	896,796
Netherlands	11,000,000	105	510,000	500,000	724,000	870,000	875,560
Norway	3,400,000	159	1,357,000	1,393,409	501,000	625,900	656,040
Argentina	19,294,000	44	58,000	88,000	191,925	251,511	550,000
Austria	7,100,000	72	560,927	607,678	394,000	486,906	529,710
Brazil	57,350,000	19	201,000	208,000	330,000	379,000	385,000
Switzerland	4,950,000	146	193,000	195,000	280,000	341,000	380,000
Australia	9,313,000	141	157,400	176,000	270,000	330,000	366,000
Belgium	8,870,000	110	110,660	115,421	307,833	334,932	351,330
Mexico	30,000,000	20.1	96,000	148,000	201,000	207,000	274,000
Spain	29,087,387	17	110,479	126,489	160,000	249,250	253,250
India	380,000,000	1.9	22,500	25,200	152,023	139,795	166,396
Denmark	4,400,000	140	4,070	11,000	135,000	138,000	150,000
South Africa	13,400,000	51	41,000	46,000	61,000	85,000	115,000
Yugoslavia	17,676,000	13	69,498	90,349	70,000	73,195	79,188
North Africa	60,000,000	11	330,000	330,000	44,000	50,000	70,000
New Zealand Chile	2,100,000	104 26	81,616	96,000	35,000	45,106	65,000
Ireland	6,000,000 2,933,000	59.8	24,408	22,058	52,500	57,187	60,627
Taiwan	9,186,609	13.5	9,000	12,000	40,000	42,620	58,350
Portugal	8,621,000	14.5	18,538	20,273	38,500	47,604	56,791
Turkey	22,500,000	7.7	45,000	52,000	41,000	48,700	35,300
Hawaii	500,000	166	32,340 40,000	38,700 40,000	32,600 35,000	38,500 40,000	49,500
Cuba	5,870,000	68	20,000	20,000	55,000	37,300	40,000
Colombia	12,000,000	12	none	none	15,000	25,000	36,400
Uruguay	2,530,000	46.4	6,000	6,000	22,000	35,000	35,000
Greece	7,865,000	14	none	7,000	28,000	30,000	33,000
Pakistan	80,000,000	2	none	8,000	10,000	20,000	30,000
Peru	8,714,000	7	13,000	13,000	24,500	27,500	29,820
Puerto Rico	2,210,000	10	10,000	12,000	22,000	22,000	24,000
Egypt	22,000,000	10	2,200	3,000	25,850	19,910	23,000
Israel	1,800,000	49	none	none	500	8,250	16,500
Philippines	22,056,100	10	4.573	4,917	8,000	10,600	16,000
East Africa	56,000,000	2	none	none	none	8,000	10,000
Venezuela	5,300,000	25	none	none	10,000	8,800	10,000
Indonesia	77,000,000	3.5	none	none	2,200	7,000	7,000
Thailand	19,556,000	2.2	none	3,000	1,500	3,000	4,000
Costa Rica	915,000	14.2	none	none	1,400	3,000	3,000
Burma	19,045,000	1.3	none	none	500	1,000	1,000
Ceylon	8,200,000	3	1,000	1,000	500	1,000	1,000
Cambodia-Laos-	_,		-,000	2,000		2,000	1,000
Viet-Nam	30,000,000	2	none	none		1,000	1.000
Bolivia	3,100,000	3	none	none	800	800	800
Guatemala	3,200,000	8	500	700	220	500	700
Paraguay	1,530,000	3.6	none	none	450	450	480
Ecuador	3,570,000	6.9	none	none	-00	400	350
El Salvador	2,100,000	8.3	none	none			300
Rest of America	23,000,000	2	none	none	1,000	1,200	1,400
Rest of Asia	150,000,000		none	1,000	1,000	2,000	3,000
West Africa	51,000,000	1.5	none	none	none	none	none
All Free World	1,748,572,208	66	42,976,036	47,039,277	47,079,381	51,953,528	57,767,708
Russia and Satellites	907,637,000	11.6	3,786,800	4,328,000	3,397,000	4,448,200	5,279,200
Whole World	2,656,209,208	47.4	46,762,836	51,367,277	50,476,381	56,401,728	63,046,903

NOTE: PAPER includes PAPER and PAPERBOARD.

PULP includes WOODPULP, STRAWPULP, BAGASSE PULP, ESPARTO PULP.

These statistics are gathered directly by PULP & PAPER magazine from virtually every country and territory listed—from official sources or authoritative sources. In some few cases data came from officials or authorities in neighboring or governing countries.

# RUSSIA AND ITS SATELLITES

Paper Production—1953, 1954, 1955. Pulp Production—1954, 1955. Per Capita Paper Use—1955. From Direct or Reliable Sources.

	Population	Per Capita Consumption of Paper in 1955 oulation (in lbs.)	PRODUCTION—In Short Tons					
			Pulp 1954	Pulp 1955	Paper 1953	Paper 1954	Paper 1955	
Russia	200,200,000	26	2.000,000	2.300,000	1.581.000	2,200,000	2,563,000	
Red China	601,000,000	1.6	170,000	200,000	230,000	320,000	350,000	
East Germany	17,314,000	73	760,000	800,000	679,000	630,000	680,000	
Czechoslovakia	13,000,000	51	460,000	500,000	300,000	317,000	460,000	
Poland	26,500,000	52	230,000	300,000	389,000	687,000	800,000	
Rumania	15,873,000	25	150,000	200,000	132,000	198,000	250,000	
Hungary	10,000,000	14	8,000	18,000	55,000	60,000	110,000	
Bulgaria	7,250,000	26	6,000	6,000	25,000	30,000	60,000	
North Korea	4,500,000	2	2.800	3,000	5,000	5,000	5,000	
Red Indochina	12,000,000	0.7	none	1.000	1.000	1,200	1.200	
Total	907,637,000		3,786,800	4,328,000	3,397,000	4,448,200	5,279,200	

Note: PAPER includes PAPER and PAPERBOARD.

PULP includes WOODPULP, STRAWPULP, BAGASSE PULP, ESPARTO PULP.

These statistics are gathered direct from some countries by PULP & PAPER or from reliable sources.

# The World Made a Record Breaking 63,046,903 Tons of Paper and Board in 1955

This is the third year in a row that PULP & PAPER has brought together in this annual issue the latest statistics on pulp, paper and paperboard-direct from virtually every country and territory 'round the world.

Here is published for the first time anywhere, the 1955 statistics for more than 50 nations and territories.

This undertaking would not have been possible without the reports received in recent weeks from over 70 correspondents abroad—officials or industry executives and leaders who sent their information direct to Pulp & PAPER headquarters.

IMPORTANCE TODAY . . many years PULP & PAPER has been publishing worldwide statistics and articles on what the industry is doing in other parts of the world. Those who work and live in this industry have indicated their interest in such news, but now it has become of much greater importance as more and more companies are becoming involved in business beyond the borders of their country. Pulp and paper companies have created new export divisions, some have made investments in mills abroad, or have entered into exchange agreements of one kind or another, or have granted or been granted, manufacturing licenses.

FREE WORLD VS. RED WORLD
. . . The statistics shown on these

pages enable readers to see a measure of the "cold war" strength between the free nations of the world and what might be called "The Red World"—Russia and its satellites. The reader will note that, again this year, we kept Yugoslavia in the Free World column, despite current debate as to which side Tito is on. Our own direct report from Belgrade reveals that—in pulp and paper trade, at least—Yugoslavia is still doing business with the Free World, to a much greater extent than with Russia.

The new tables on these pages show this:

Russia and its satellites made only 4,328,000 short tons of pulp last year, compared to 47,039,277 tons made by the Free World. This is mostly woodpulp, but other fibrous pulps, except waste paper, are counted.

Russia and its satellites made only 5,279,200 short tons of paper and paperboard last year, compared to 57,767,703 tons by the Free World.

The average person in Russia's world consumed only 11.6 lbs. of paper and paperboard in 1955. In the Free World, the per capita consumption was 66 lbs. per person.

It is widely recognized today that pulp and paper are a measure of national strength. They are a measure of progress and civilization. In wartime, pulp and paper are essential products, too. The general's maps, the civilian's newspapers, the containers for safe and protective shipment of every kind

of product to tropic or arctic zones—these and many other essentials are made of paper. High grade woodpulps were used in the last World War to fire most of the United States Army's light arms and also the British Navy's guns. Its use to fire weapons will be more widespread if there is a "next war"—as the techniques of manufacturing and utilizing nitrating pulp have improved. From pulp, too, come the tire cord for airplanes and land vehicles, rayon and acetate for textiles, the raw material for cellophane and many plastics.

NEW WORLD RECORDS . . . In 1955, new records for production of pulp and paper were established in virtually every country in the world.

Worldwide production of paper and paperboard in 1955 totalled 63,046,903 short tons. This was a phenomenal increase of about 61/2 million tons over 1954, or nearly 9%.

Worldwide production of pulp of all kinds (but predominantly woodpulp) climbed from 46,762,836 short tons in 1954 to 51,367,277 tons in 1955. This was a rise of about 4,600,000 tons, or 10%.

The average person in the world in 1955 made use of 47.4 lbs. of paper. In 1954, he consumed only 42.3 lbs.

In the Free World the per capita consumption went up to 66 lbs. from 58 lbs. in 1954, but the Red World resident's consumption went up only from 10.4 to 11.6 lbs.

U.S. CONSUMES OVER HALF WORLD'S PAPER . . . The United States again produced nearly half of SUMMARY OF WORLD PRODUCTION

# WORLD'S LEADERS IN PER CAPITA CONSUMPTION OF PAPER\*

#### -1955

	Lbs. per person
1. U.S.A.	418
2. Canada	280
3. Sweden	200
4. Britain	187
5. Norway	159
6. Switzerland	146
7. Australia	141
8. Denmark	140
9. Finland	124
10. West Germany	121
°Includes PAPERBO	DARD

the total world paper production—nearly 30,000,000 lbs. and its consumption in 1955 was more than half of what the world consumed. U.S. consumption was 34,500,000 tons, the difference made up by imports of Canadian newsprint.

Nearest producer of paper to the U.S. was Canada, a far-behind second with 7,170,360 tons. Britain came third with 3,646,965, and West Germany, Russia, Japan, France, Sweden and Finland were the only other nations to make over 1,000,000 tons, as shown in accompanying tables.

In the pulp world, the U.S. led again—20,837,562 tons. This was more than twice as much as the No. 2 country, Canada. Sweden was third, Finland fourth, and the only others to make over 1,000,000 tons were Russia, Japan, West Germany and Norway.

#### NEW WORLD PER CAPITA DATA

... The new per capita consumption data gathered for 1955 by PULP & PAPER shows U.S. far ahead—every man, woman and child in that country used 418 lbs. of paper, a fantastic new record, up from 383.7 lbs. in 1954 and 392 lbs. in 1953.

Canada's paper per capita use was 280 lbs., same as a year ago. Sweden was next with 200, followed by Britain with 187. Compare this with 26 lbs. in Russia and only a bare 1.6 lbs. for each of the 601,000,000 inhabitants of Red China, and it is apparent what a wide gap there is between the Free and Communist world in culture. That may be pointed to as a "cause" as well as an "effect" of Communism.

East Germany has a much better record than Russia, although it is now within the Russian orbit, with 73 lbs. per person and Poland and Czechoslovakia residents have 50 each, twice what the average Russian consumes.

Anyone with a little imagination can see the possibilities for future growth of the pulp and paper industry by a mere glance at some of the low

# HOW NATIONS RANK IN PAPER\* PRODUCTION—1955

		Short tons
1.	U.S.A.	29,883,060
2.	Canada	7,170,360
3.	Britain	3,646,965
4.	West Germany	2,772,816
5,	Russia	2,563,000
6.	Japan	2,429,064
7.	France	1,972,850
8.	Sweden	1,647,000
9.	Finland	1,434,000
10.	Italy	896,796
°In	cludes PAPERROARD	

paper per capita figures for many under-developed countries—7 lbs. in

Peru, 19 lbs. in Brazil, 17 lbs. in

Spain, 13 lbs. in Yugoslavia, 11 lbs.

in North Africa, 2.2 lbs. in Thailand, and only 1.9 lbs. in India.

PULP TRENDS . . . In the forepart of this issue is the story and data on world pulp commerce and the trends that are developing. This is an important section of this issue as it tells of the important sources of supply, now and in the future, for so many countries. These nations are mainly dependent today on North America for their pulp supply. The Scandinavian countries also continue to be major suppliers all around the world. Nearly all the pulp that is exported comes from these two areas of the world. The future of paper industries in many countries depend upon them.

#### THE WORLD REVIEW BY COUNTRIES AND TERRI-TORIES PROPER BEGINS ON PAGE 147

Here are sections on each and every country, practically, the whole world 'round. Of course, the lead-off sections are on U.S.A. and Canada, where pulp and paper is the No. 5 and the No. 1 industry, respectively.

You will read of the terrific prosperity and boom in paper production in Britain. How France is searching for new fiber sources as its demand rises. How West Germany continues a remarkable postwar recovery.

What is new in the Scandinavian countries is told. Of these, Finland, alone, seems in a position to expand as a pulp exporter. Pulp and paper are the No. 4 industries in countries

# HOW NATIONS RANK AS PULP\* PRODUCERS—1955

	Short tons
1. U.S.A.	20,837,562
2. Canada	9,567,414
3. Sweden	4,258,000
4. Finland	3,025,000
5. Russia	2,300,000
6. Japan	2,102,705
7. West Germany	1,460,195
8. Norway	1,393,409
9. France	823,100
10. Austria	607,678
<sup>o</sup> Includes WOOD,	STRAW, BA-
GASSE and ESPART	

like Finland, Austria and New Zealand, as you will read in these reports.

You will read of more machines in the Low Countries and the uniquely important strawpulp and strawboard industry in the Netherlands. In Portugal is a mill making a fine eucalyptus sulfite and shipping it to many far points.

NEWS FROM FAR LANDS . . . In India the biggest machine in all Asia is about to start making newsprint wholly with local grown fibers. In Pakistan, a new industry is launched—and in honor of this our cover picture shows an elderly citizen of this Islamic Republic at work in a new mill in that faraway land.

How Japan is making a comeback is told. Also, the tremendous potentials of Brazil, with by far the biggest population in Latin America. In Brazil, in Peru, in Colombia and in Mexico, more United States companies invest in, and build, new mills.

You find in these pages that not a single pound of paper or pulp is made in all West Africa, though there are mills in the "talk" stage. But you read how South Africa launches its first dissolving pulp mill.

A struggling but successful paper industry is weathering its first years in Israel, despite the border strife with Egypt. Turkey adds machines to its new mills. In Guatemala is the only mill using banana grass for pulp.

YOUR FUTURE—AND THIS RE-VIEW . . . All of these things you will read about in this WORLD RE-VIEW NUMBER. Over 70 persons around the world, interested as you are in pulp and paper, helped to bring this volume to you.

#### **How to Convert Statistics**

Short tons are used as measure of pulp, paper, etc., in this WORLD RE-VIEW. A short ton equals 0.907 metric tons. A short ton is 0.893 long tons. A metric ton is 1.102 short tons. A long ton is 1.12 short tons or 1.016 metric tons. A kilogram equals 2.2046 lbs.

One cord equals 2.55 cubic meters (a meter equals 39.37 inches), or 90 cu.

One cord equals 2.55 cubic meters (a meter equals 39.37 inches), or 90 cu. ft. of wood, not counting air space. But usually wood and air space are counted, which would be 128 cu. fe. or 3,62 cu. m. A hectare equals 10,000 square meters, or 2.47 acres.

# For long chain life under brutal impact-

# LINK-BELT SS-150+

# Here's the pulpwood conveyor chain that outlasts them all!

Because of corrosion, abrasion, terrific impact and heavy loads, pulpwood conveying requires the best in chain. Some users report SS-150+ has shown over double the life as compared to other quality chains in this grueling service.

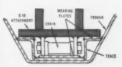
The reason? It's another case of the right choice from the complete Link-Belt line. With 100,000-lb. average ultimate strength . . . plus hardening of pins, bushings, steel sidebars and joint bearing surfaces—SS-150+ is ideally suited for such jobs. In addition, a broad selection of attachments is available to solve your conveying or elevating problems.

Don't be satisfied that the chain you're now using is giving you maximum service until you've talked to a Link-Belt representative or authorized stock-carrying distributor. From our complete line of roller and silent chains ... of cast, combination, forged and fabricated chains—he'll show you the one best-suited for your purpose. Ask, too, about Link-Belt's many attachments which allow economical adaptation to exact requirements.





S-10 attachment on rugged SS-150+ chain has broad sliding surfaces for longer wear-life for both track and chain. Impact from logs hitting attachment is absorbed by track rather than chain joint. And to combat corrosion fatigue specify cadmium-plated pins.





Logs drop to Link-Belt SS-150+ single-strand inclined conveyor with S-10 attachments at large paper company. Whereas ordinary chains lasted 6½ months on this job, SS-150+ went 2½ years without replacement.



CHAINS AND SPROCKETS

13.896

LINK-BELT COMPANY: Executive Offices, Prudential Plaza, Chicago 1. To Serve Industry There are Link-Belt Plants, Sales Offices, Stock Carrying Factory Branch Stores and Distributors in All Principal Cities. Export Office: New York 7; Canada, Scarboro (Toronto 13); Australia, Marrickville, N.S.W.; South Africa, Springs. Representatives Throughout the World.

# PROTECTIVE COATINGS

# **EPOXY RESINS**

TOUGHNESS - ADHESION - STABILITY

PERMOLITE 11A

(Room Temperature Cured)

**PERMOLITE 12** 

(Oven Baked)

LICENSED AND FACTORY TRAINED APPLICATORS

Atuntington

For Rubber Roll covering we are licensed on the West Coast by Stowe-Woodward, Inc., Newton Upper Falls, Mass.

RUBBER MILLS Inc.

# **FLUOROCARBON COATINGS**

(TRIFLUOROCHLOROETHYLENE POLYMER)

HIGH DEGREE OF RESISTANCE UNDER SEVERE CORROSIVE SERVICE CONDITIONS



Office at: 35 West Lander Street

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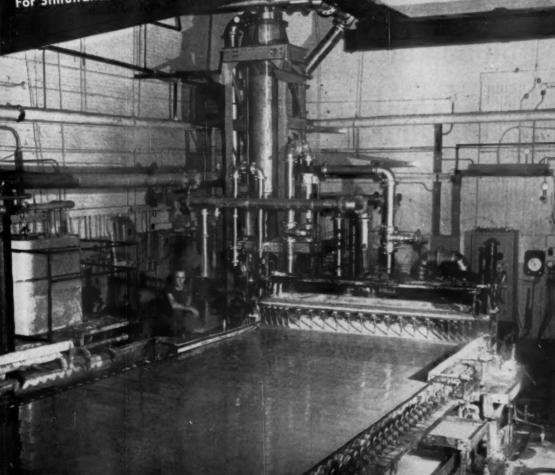
34315 16th Avenue South SEATTLE, WASHINGTON

Telephone MAin 2166

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Portland, Oregon





# Repeat orders are proof of performance.... ...No. 2 Machine Vorvac started up Jan. 30, 1956

Vorvac installations in operation on newsprint, kraft, rag stock, book and glassine papers have resulted in improved cleaning, drainage and grease proof test, with the additional benefits of machine speed-up and elimination of pitch, headbox showers and foam killers.

Write for the Vorvac Survey Form

VORVAC

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70 PINE ST., NEW YORK 5, N. Y.
1477 Sherbrooke St. W., Montreal 25, Canada

# The Hercules Family of Quality Chemicals for Papermaking

- PEXOL®
  Fortified Size (Paste or Dry)
- REGULAR ROSIN SIZE

(Paste or Dry)

- ROSIN WAX SIZE
- AQUAPEL®

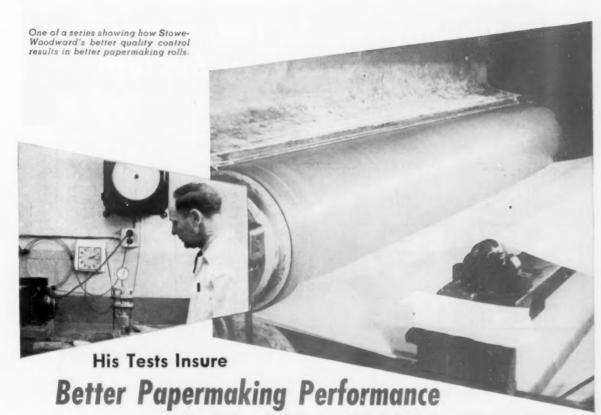
  (Alkyl-Ketene Dimer Size)
- PARACOL®
  (Wax Emulsion)
- KYMENE®
  (Wet-Strength Resin)
- DEFOAMERS
- CMC (Sodium Carboxymethylcellulose)
- COTTON LINTERS



HERCULES POWDER COMPANY

INCORPORATED

965 King St., Wilmington 99, Del.



for every Stowe-Woodward Rubber Covered Roll

If Stowe-Woodward rolls were delivered from "stock"... or made from "stocked" batches of rubber... such precise laboratory checking procedure of every roll would be unnecessary. But every Stowe-Woodward roll is customed to an individual papermaker's needs... and to insure papermaking performance, the laboratory technician duplicates the vulcanizing process with miniature equipment and verifies by actual test the performance characteristics specified. In this photo he is checking the density of a "plug" from a compound prepared for a Stonite press roll.

Stowe-Woodward's unusual degree of quality control can increase paper production in your plant . . . and your Stowe-Woodward Sales Engineer is well qualified to help you solve any rubber roll problem. Why don't you consult him.

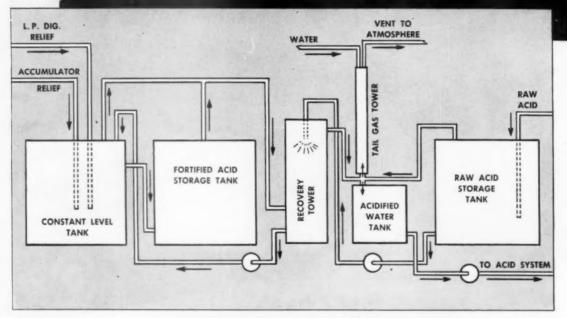
"RUBBER ROLLS with a REPUTATION"



STOWE-WOODWARD, Inc.

NEENAH, WISCONSIN . NEWTON 64, MASS. . GRIFFIN, GEORGIA

# Chemipulp-KC Independent SO<sub>2</sub> Gas Recovery System



- Increases Acid Strength by 1 to 2%
- Permits Constant Sulphur Burner Operation
- Less SO<sub>3</sub> No Sublimation

Consisting of a relief gas recovery tower and a tail gas tower with weak acid storage tank, the Chemipulp-KC Independent Recovery System results in stronger, more uniform cooking acid and in more uniform, trouble-free burner operation.

Unabsorbed relief gases from the constant level tank and gases from the fortified-acid storage tank are brought to the recovery tower where they are absorbed in acid and returned to the fortified-acid tank.

Any unabsorbed gases from the recovery tower, together with gases from the raw-acid storage tank are brought to the tail gas tower where they are absorbed in water. The resulting weak-acid solution is pumped to the acid-making towers as make-up water.

No gas is returned to either the discharge or suction side of the gas fan, resulting in constant burner operation and improved recovery.

Write for Details

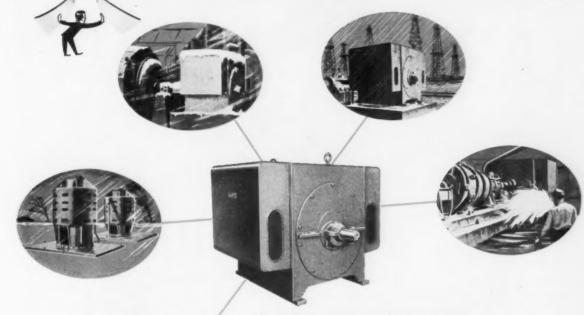
#### Chemipulp Process Inc.

Woolworth Bldg., Watertown, N.Y.

Associated with Chemipulp Process Ltd., 403 Crescent Bldg., Montreal

Pacific Coast: A. H. Lundberg, Orpheum Bldg., Seattle • Lundberg-Ahlen Equipment Ltd., 146 E. Broadway, Vancouver

LOOK BEHIND THE "INSULATION CURTAIN" BEFORE YOU SELECT A LARGE MOTOR





MODERN ELLIOTT COIL INSULATION ...

and winding treatment combines the latest in materials with the know-how and thoroughness

of application to make them successful, Some

· Ground insulation combining the ageless and

high temperature resisting characteristics of

mica with the tough, flexible support of Mylar\*

· Vacuum-pressure impregnation for sure, com-

plete penetration, (Completely wound stator is finally sealed by immersion in a specially suited insulating varnish.) Bulletin PB 1400-4 tells the

· A permanently elastic insulating varnish.

# In 7 years of service not one case of stator failure due to insulation breakdown

Merchandising alone doesn't "make" a motor. Fancy names, laboratory tests and "miracle formulas" don't mean a thing until actual, on-the-job service records back them up. Elliott insulation in large, squirrel-cage induction motors has proved itself. Since 1948, when Elliott weather-protected motors first went on the job, not one motor has failed because of insulation troubles. This is the record chalked up by more than 1,400,000 hp of motors in service – 500,000 hp of them in rigorous outdoor service operating in extremes of dampness, rain, snow, sleet, hurricanes, tornadoes, oil fumes, salt spray, and many other unusual conditions. What better proof of motor insulation dependability can you ask for?

This outstanding insulation system has now been extended to all induction or synchronous motors for pulp or paper mill service. For details see your Elliott field engineer or write to the Elliott Company, Ridgway Division, Ridgway, Pa.

whole story. Write for a copy.

\* Dupont Trademark

20-0A

highlights:

ELLIOTT Company

Elliott large motor insulation is "field-proven"



# SCRIPTITE\*40

Increased cationic effect of new Monsanto resin assures more complete exhaustion!

Scriptite 40 is a *new* concept in urea formaldehyde resins for paper finishing. Extensive mill trials have demonstrated that this Monsanto urea resin provides special advantages in improved performance over competing urea resins.

Scriptite 40 will impart outstanding wet strength for your paper product—and at the same time improve dry tensile, mullen, wet rub resistance, dimensional stability and folding endurance.

Because this new water-soluble urea-type resin has been made more cationic, it is strongly attracted to the cellulose, assuring high efficiency in application. Scriptite 40 provides faster cure, and paper products maintain a higher wet strength value with less resin add-on than is usually required.

For laboratory sample of Scriptite 40 and technical bulletin, write to Monsanto Chemical Company, Plastics Division, Room 921, Springfield 2, Mass.

The Monsanto Line of Paper Resins also includes

SCRIPTITE 54 . . . for outstanding water resistance and both wet and dry rub resistance

SCRIPTITE 52 . . . in combination with formaldehyde to give water resistance to folding boxboard and to jute liner

SCRIPTITE 50 . . . for unsurpassed printability and improved surface characteristics on boxboard

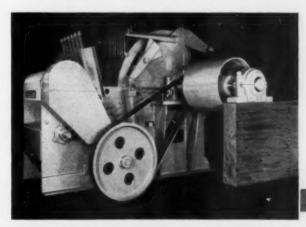
SCRIPTITE 33 . . . a melamine wet-strength resin



escriptite: REG. U.S. PAT-OFF.



# DESIGNED ESPECIALLY for SLABS, EDGINGS and TRIM BLOCKS



Converts sawmill waste to high-grade, uniform size pulp chips at the rate of 10 cords per hour! Contains features that sawmill operators have long wanted, such as: Large opening designed for refuse; Simple installation; Controlled horizontal feed; Automatic clearing cylinder; Individually hung pressure fingers which follow contour of the knives holding the ends of the stock being chipped. Discharge is either through bottom or at rear as desired. Available in different sizes.

Write for Complete Information and Prices

10.0th ANNIVERSARY
1856-1956
THE FILER & STOWELL COMPANY
MILWAUKEE 7, WISCONSIN

# 3 sets of CONKEY EVAPORATORS

set number

on order!...

Three complete Conkey Evaporators in *one* large pulp mill and *one* more for the same mill is now on order in our shops. There is no better proof of Conkey Evaporators than the many *repeat orders* from pulp mills in which they are already in operation.

The repeat order from the pulp mill for their fourth set of Conkey Evaporators was on the basis of performance and design of their present three sets... and the personal service offered by Conkey engineers.

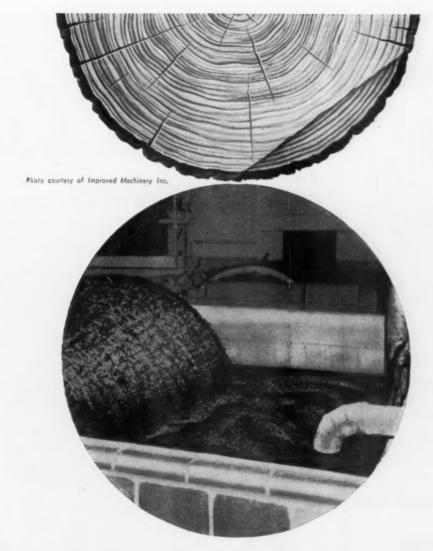
Conkey Evaporators are fabricated and erected to exacting requirements in Chicago Bridge and Iron Company's four strategically located plants. Write our nearest office for further information.

Left: Third set of Conkey Sextuple Effect Evaporators installed in a large pulp mill.

# CHICARD BRIDGE & IRON COMPANY

CONKEY

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston Los Angeles • New York • Philadelphia • Pittsburgh • Salt Lake City San Francisco • Seattle • Tulsa



# Increase Pulp Production

with minimum capital expenditure

The Ammonium Bisulphite Pulping Process pioneered by Allied's Nitrogen Division makes it possible for you to –

Cut cooking time with better penetration Increase pulp yield, reduce screening losses Handle lower cost wood species previously unusable Cut maintenance cost — no scale formation in equipment Reduce sulphur costs through more efficient SO<sub>2</sub> absorption Reduce stream pollution Eliminate costly handling of limestone — anhydrous ammonia unloads from tank cars under its own pressure Maintain uniform raw acid strength year round—automatically...All this can be accomplished with little or no replacement of equipment! A technical service man will be glad to call — without obligation.



Ethanolamines • Ethylene Oxide • Ethylene Glycols • Urea • Formaldehyde • U. F. Concentrate—85 • Anhydrous Ammonia • Ammonia • Liquor • Ammonium Sulfate • Sodium Nitrate • Methanol • Nitrogen Solutions • Nitrogen Tetroxide • Fertilizers & Feed Supplements

# NEW Most Powerful One Man Chain Saw You Can Own

7 horsepower 29 pounds

# HOMELITE

A DIVISION OF TEXTRON, INCORPORATED

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MANUFACTURERS OF CARRYABLE PUMPS • GENERATORS • BLOWERS • CHAIN SAWS

In Canada: Terry Machinery Co., Ltd.

Toronto • Montreal • Vancouver • Ottawa • Edmonton • Monct

of Chain Saws for Every Cutting Job



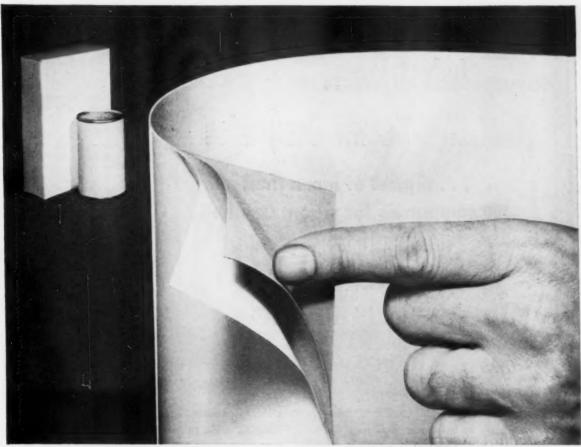
MODEL 17 — An all purpose saw that brings down trees up to 4 feet in diameter. Available with special brush cutting and clearing attachments for complete versatility 3.5 horsepower 22 lbs.



MODEL 5-20 — All the versatility of the 17 with added power, lighter weight. 5 full horsepower — 20 lbs. Brings down trees up to 6 feet in digmeter.



MODEL EZ — Lightest, most powerful direct drive chain saw ever developed. Only 19 pounds, full 5 horsepower. Brings down trees up to 3 feet in diameter.



A-C POLYETHYLENE between paper plies improves laminated carton stock.

# For Multi-Ply Carton Makers -A Special Sandwich

This paper-polyethylene sandwich of paper and modified wax lamination is of special interest to carton manufacturers. The laminating material contains A-C POLYETHYLENE.

A low-molecular-weight, low-viscosity polymer, A-C POLY-ETHYLENE will end many of the disadvantages sometimes characteristic of asphalt. It will up-grade wax-type laminates commonly used in multi-ply cartons. And it should increase production and make a more attractive, more durable carton. Many new product combinations can now be considered for lamination work when A-C POLYETHYLENE is included.

A-C POLYETHYLENE controls the viscosity of laminating mixes, reduces unnecessary, wasteful penetration into the paper stock and eliminates unsightly strike through. Greater speed and mileage should also be gained in production for this reason. Melting points are raised, reducing delamination and bleeding at elevated shipping and storage temperatures.

\*Trade-mark

AC Polyethylene

A-C POLYETHYLINE combinations will not easily squeeze out under pressure or stick to cutting knives in production.

Try this remarkable polyethylene in your laminating mix. A-C POLYETHYLENE is available from local warehouse stocks. If you prefer, combinations may be obtained from your local wax blender. Write for samples and technical literature on A-C POLYETHYLENE today. For information on A-C POLYETHYLENE and a list of sales offices write for Bulletin #116.

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# Industries ... Well-Known Companies

... typical of more than 100 companies for whom Grinnell is currently fabricating

> POWER AND PROCESS PIPING

NATIONAL ANILINE DIVISION OF ALLIED CHEMICAL & DYE CORP.,

UNION BAG & PAPER CORP.,

#### POWER

PENNSYLVANIA POWER & LIGHT COMPANY, Allentown, Ps.

#### BEVERAGE

CARLING BREWING COMPANY, Notick, Muss.

TIDEWATER OIL COMPANY, Delawere City, Del.

These successful companies, leaders in their respective fields, are building new facilities right now. The power and process piping needed in this construction is being fabricated in Grinnell shops.

In fact, at this time - or at any given time, more than one hundred similar-type orders for prefabricated piping are being worked on by Grinnell. Why this marked preference by so many companies for Grinnell?

Because piping fabricated in Grinnell shops is done under ideal conditions, with modern equip-

ATTENTION: A 30-minute color sound film showing the quality and economy of Grinnell Shop Fabrication of all classes of piping is available for group showings.

ment, by personnel qualified for each class of work. Included in the price (which is determined in advance) are such items of expense as: interpretive engineering, shop sketches and planning, procurement of materials, power services, expendable tools and supplies. All piping is rigidly inspected and tested to comply exactly with customer specifications and applicable codes. Consult Grinnell on your next piping job.



Pipe being heated to exact temperature required for proper bending



Skilled team completes bend in six minutes with pipe close to 2000°F



Fabricated piping, bending operation completed, enters stress-relieving furnace



Heavy wall pipe being machined to the proper welding bevel on a post mill



Ultrasonic testing heavy wall pipe



Grinnell Company, Inc., Providence, Rhode Island

Coast-to-Coast Network of Branch Warehouses and Distributors

pipe and tube fittings \* welding fittings \* engineered pipe hangers and supports \* Thermolier unit heaters \* valves Grinnell-Saunders diaphragm valves \* pipe \* prefabricated piping \* plumbing and heating specialties \* water works supplies industrial supplies Grinnell automatic sprinkler fire protection systems Amco air conditioning systems OR PITCH CONTROL

Nalco 818 is recog-nized for its outstanding control of pitch . . . is effective under a wide range of pH conditions.

VERSATILE-ECONOMICAL

POLYPHOSPHATES

FOR STABILIZATION

Nalco 918 effectively combats calcium and magnesium hardness . . prevents scale formation as well as corrosion, at surprisingly low dosage.

CLAY CONTROL

Nalco 818 and 918 make ideal dispersing agents for clay slurry . . . require no special attention, no critical control of dosage.

FOR DE-INKING

Nalco 918 provides both dispersion and detergent action. quickly loosens ink from fibres ... keeps it suspended for easy disposal.

NALCO research in Polyphosphates has brought better control of cost and quality to many a mill.

Listed above, of course, are merely the big and broad applications of Nalco Polyphosphates.

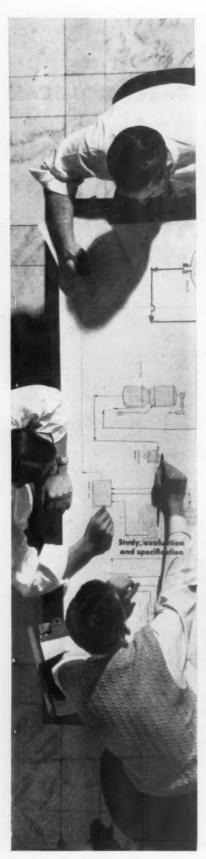
The more detailed information you may desire is available without obligation. Write Nalco today.

NATIONAL ALUMINATE CORPORATION 6213 West 66th Place . Chicago 38, Illinois

In Canada: Alchem Limited, Burlington, Ontario



• Serving the Paper Industry through Practical Applied Science



## Automatic control systems engineered from conception to operation by a single, responsible service

The economy and efficiency of start-to-finish engineering of automatic control systems is available from Panellit's Instrument Services Division. This staff of mechanical, electrical and chemical engineers—all with process experience—offers the broad scope of instrumentation services outlined below. Where management's own instrument and process engineers or contracting organizations are available, Instrument Services Division supplements this personnel and provides specialized experience. Division activities have included major instrumentation projects in the process, power and atomic energy industries and for engine test facilities.

**Studies and evaluations** of instrument requirements are made, and recommendations are submitted. If desired, detailed specifications are prepared permitting the customer to invite bids on the recommended equipment.

**Equipment installation, inspection and check-out** are supervised by Division instrument engineers working with factory-trained craft foremen and technicians. Typical field work includes erecting panel-boards, installing field-mounted transmitters, making electrical or tubing interconnections, as well as system testing, calibration, and start-up. (Installation services are offered for instrumentation only, not for its associated process equipment.)

Field maintenance of installed instrumentation is also provided by Instrument Services Division on a contract basis.

Overall project coordination of these individual services places entire responsibility for automatic control systems in one qualified organization. Since Panellit is concerned mainly with systems and manufactures no standard instruments available elsewhere, the Division has an impartial approach in recommending system components. Your inquiry is invited.

Equipment installation and check-out



Field maintenance



Overall project coordination



#### INSTRUMENT SERVICES DIVISION

**Engineered Information Systems For Industry** 



Graphic Panels,



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PANELLIT, INC. 7425 N. Hamlin Ave. Skokie, Illinois

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# **SLIME CONTROL**

in the most capable hands

The experienced, individualized service of a Buckman technical man is always as close as your telephone. He is an integral part of the Buckman team of laboratory and field men constantly developing better products and methods for industrial microorganism control,

# BUCKMAN

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MCROORGANISM CTATROL SPECIALIST





HYGROTESTER INC., P. O. Box 923, Brooklyn 1, New York — Tel. ULster 2-8464

CANADA: Industrial Scientific Instruments, Ltd., 1610 Sherbrooke Street West, Montreal 25, P.Q.

SCANDINAVIAN COUNTRIES: AB HYGROTESTER, Rostastrand 1-3, Orebro-Sweden

Manufacturer of Hygrotester: PAUL LIPPKE, P.O. Box 29, Neuwied-Rhein, Western Germany

# Westwaco SODA ASH... better because

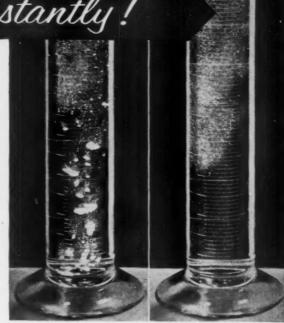


The pictures tell the story. We remind you here that solutions of WESTVACO Soda Ash also average 94% transmittancy value on the Fisher Electrophotomer (distilled water: 100).

Being clear, colorless and chemically pure, they are especially suited for use in organic chemical, pulp and paper manufacturing.

Without exception users of WESTVACO Soda Ash have been highly pleased with its physical properties and chemical purity. If you use soda ash anywhere in the area bounded roughly by the Mississippi Valley, the Panhandle and the Pacific, you should be using WESTVACO Soda Ash.

We'd like to help you do just that.



ORDINARY SODA ASH

WESTVACO SODA ASH



Westvaco Chior-Alkali Division FOOD MACHINERY AND CHEMICAL CORPORATION

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PULP & PAPER-1956 Review Number

# PULP MILLS . . . Attention

Summer

HEADQUARTERS FOR WOODROOM MACHINERY











LOG HAUL, DECK AND GENERAL TRANSMISSION MACHINERY

BARKERS HYDRAULIC - MECHANICAL

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AXE SPLITTERS
BAND MILLS
TWIN BAND RIPS
NO MAN CARRIAGES
SLASHERS

CHIPPERS \*

CHIP SCREENS AND FEEDERS

HOGS, BRIQUETTORS, TRIMMERS, SPROCKETS

SPECIAL PULP
AND PAPER MILL
MACHINERY
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DECKERS
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GENERAL
TRANSMISSION
MACHINES











SUMNER IRON WORKS
EVERETT, WASHINGTON

In Canada: Canadian Sumner Iron Works, Ltd., Vancouver, Canada

# CHEMICAL USERS' GUIDE To General Chemical Products for the Paper Industry

PRODUCT	AVAILABLE FORMS	COMMERCIAL STRENGTH (MIN.)	SHIPPING CONTAINERS	APPLICATIONS
Aluminum Sulfate Al <sub>:</sub> (50.): * 14H <sub>:</sub> O approx. (Alum)	Commercial & Iron Free: Lump, Ground Powdered	17.25% Al <sub>2</sub> O <sub>3</sub>	Bags Buik Carloads	Precipitation of rosin size and filler; water clarifica- tion; manufacture of satin white; pitch control; mar- dant for dyes.
Aluminum Sulfate Al <sub>z</sub> (SO <sub>1</sub> ) <sub>2</sub> + water (Liquid Alum)	Liquid	32° Be (total Al <sub>2</sub> O <sub>3</sub> 7.2%)	Tank Trucks Tank Cars	Same as commercial dry product but lower strength.
Salt Cake Na₂SO₁	White or Grayish Granules	95-99% Na <sub>3</sub> SO <sub>4</sub>	Bags Bulk Carloads	Used in kraft cooking liq- uors as the source of Na <sub>2</sub> S.
Glauber's Salt, Crystal Na:SO: • 10H:O (Sodium Sulfate)	Colorless Crystals	96% Na <sub>2</sub> SO <sub>4</sub> • 10H <sub>2</sub> O (42.3% Na <sub>2</sub> SO <sub>4</sub> )	Bags Barrels Fibre Drums	Substitute for salt cake in kraft cooking liquor.
Glauber's Salt, Anhydrous Na:50: (Sodium Sulfate)	White Granules	99.9% Na <sub>2</sub> SO <sub>4</sub>	Bags Bulk Carloads	Same as Crystal but strong- er product.
Sulfuric Acid H.50,	Liquid	66° (93.19%), 99% 20% oleum and higher strengths	Carboys Steel Drums Tank Trucks Tank Cars	Wire souring; parchmentiz- ing; acid wash in last stage of multi-stage pulp bleach- ing; neutralizing tall oil soaps; pH adjusting.
Hydrochloric Acid HCI + water (Muriatic Acid)	Liquid	18° Be (27.92%) 20° Be (31.45%) 22° Be (35.21%)	Carboys Tank Trucks Tank Cars	Wet strength paper.
Sodium Bisulfite, Anhydrous Ne <sub>2</sub> S <sub>2</sub> O <sub>5</sub> (ABS) (Sodium Metabisulfite)	Powder	97.5% Na <sub>2</sub> \$ <sub>2</sub> O <sub>5</sub> (Equiv. 65.5% SO <sub>2</sub> )	Bags Fibre Drums	Anti-chlor.
Sodium Silicate Na:O • XSiO: + water (Water Glass)	Liquid	38°, 41°, 42° Be; special and higher strengths	Steel Drums Tank Cars Tank Trucks	Adhesive for corrugated and solid fibre board; used in coating mixtures to reduce viscosity and in beater sixing to stiffen paper. Aid in bleaching & floculation.
Chromium Potassium Sulfate K:50, • Cr:(50,): • 24H:0 (Potash Chrome Alum)	Red Violet Crystals	99.5% K <sub>2</sub> SO <sub>4</sub> • Cr <sub>2</sub> (SO <sub>4</sub> ) <sub>3</sub> 24H <sub>2</sub> O	Fibre Drums	Used in "save-all" or white water systems.
Aqua Ammonia NH.OH + water (Ammonia)	Colorless Liquid	26° Be (29.4% NH <sub>3</sub> )	Carboys Steel Drums Tank Trucks	Used with chlorine to form chloramines for slime control.
Sodium Fluoride	Powder	95% NaF 97% NaF	Multiwall Paper Bags Fibre Drums	Preservative and stabilizer for starch in coating mix- tures.
Tetrasodium Pyrophosphate, Anhydrous Na.P.O: (TSPP) (Pyro)	White Powder	98% Na <sub>1</sub> P <sub>2</sub> O <sub>7</sub> (Equiv. 52% P <sub>2</sub> O <sub>5</sub> )	Bags Fibre Drums	Felt washing; pitch disper- sion; coating.
Sodium Tripolyphosphate Na:P:O:o (Tripoly)	White Powder	90-95% Na <sub>5</sub> P <sub>3</sub> O <sub>10</sub> (Total P <sub>2</sub> O <sub>5</sub> —56%)	Bags Bulk Carloads	Felt washing; pitch disper- sion; coating.
Nitric Acid HNO <sub>3</sub> + water	Liquid	42° Be 67.2% HNO <sub>3</sub>	Carboys Drums Tank Trucks	Nitrating pulp; cleaning monel metal.

OTHER PRODUCTS: Sodium Sulfite; Sodium Thiosulfate; Sodium Metasilicate; Trisodium Phosphate; Copper Sul-

FOR THE LABORATORY OR SPECIAL APPLICATIONS: BAKER & ADAMSON REAGENTS and FINE CHEMICALS

### GENERAL CHEMICAL DIVISION

ALLIED CHEMICAL & DYE CORPORATION

40 Rector Street, New York 6, N. Y.

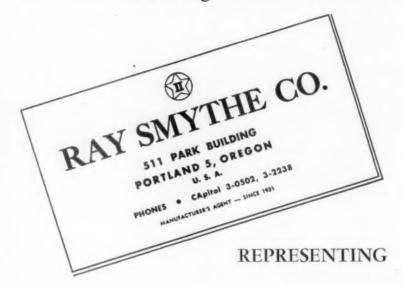
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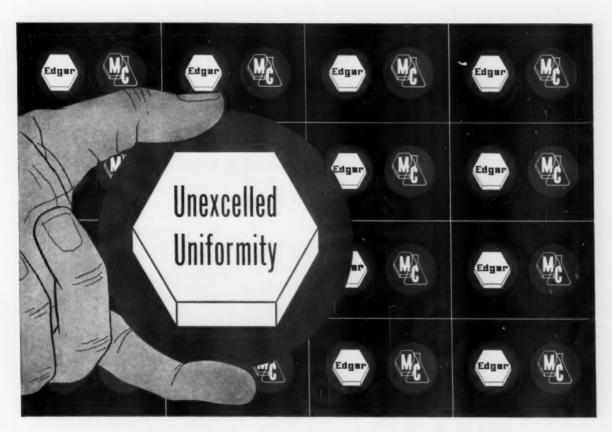
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KEEP OUR FORESTS GREEN



#### ... always yours in Edgar Paper Clays

Consistent Quality in Paper Clays is the solid record of Edgar Clay quality control procedures. Paper makers can and do depend on Edgar Product Standards every time, every car, year in, year out.

Put Edgar Clays to the Test... To insure yourself of the best possible raw materials, put Edgar Coating and Filling Clays to your own tests. Results? You will find that Edgar Clay quality stands out... not alone on high brightness, low moisture, controlled viscosity, and minimum residue... but even more important on true uniformity... that added quality to insure you consistently of highest sheet standards in your finished products.

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EXTRA DIVIDENDS...To help you select the product most suited to your requirements, there have been published full specifications and basic properties

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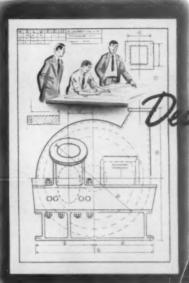
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eigned to ... PRODUCE MORE and BETTER CHIPS

Sizes 36"to 150"
Disc
Diameters

MURCO ROUND LOG Pulpwood Chippers

MURCO Round Log Pulpwood Chippers are designed to include the most desirable features for today's production requirements . . . the result of long and careful study of the various features that contribute to outstanding chipper performance in producing more and better chips at less cost . . . less sawdust, fewer slivers, freedom from repairs yet at the same time having production records of 100 cords or more per hour. The MURCO heavy design construction reduces vibration . . . MURCO Round Log Pulpwood Chippers are compact and made in standard sizes from 36" to 150" diameter discs.



A complete and detailed story on MURCO Pulpwood Chippers is contained in the new MURCO Chipper booklet . . , a copy is yours upon request. Write for it today.

D. J. MURRAY MANUFACTURING CO.

Manufacturers Since 1883 • WAUSAU, WISCONSIN







MURCO 10-Knife Chipper equipped with V-Spout (shown in open position) and Blowing Vanes on Disc



# With BOLTON Jordan Fillings you get

perfect balance and straight line, even wear for effective, uniform stock treatment.

BOLTON PLUG AND SHELL FILLINGS provide that "just right" combination. Made for ANY Jordan regardless of its make, design or size, BOLTON FILLINGS are results of many years of specialized experience in the fabrication of Jordan fillings, of extensive metals research and field testing, of precise, in-plant heat treating and rigid inspection at every step.

BOLTON TECHNICAL ADVISERS are always available for recommending the correct knife material and size for every refining requirement, for every type of furnish. They, too, will recommend the correct fillers — kilndried, straight grain, domestic or rugged South American hardwood, or the new BOLTON synthetic filler, known as RLY, for protection against abrasion and erosion.

Always for a Better Sheet it's vitally important to have the right equipment on the job. That's why it's wise to specify BOLTON PLUG FILLINGS and BOLTON HYDRO-TRUSS SHELL FILLINGS.

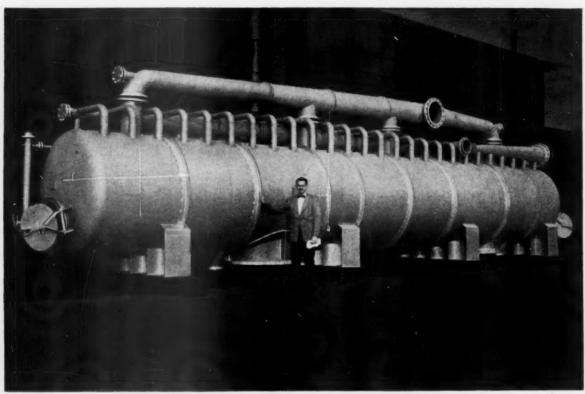
John W. BOLTON & Sons, Inc.

Lawrence, Massachusetts, U.S.A.

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Canadian Representatives: Pulp & Paper Mill Accessories, Ltd., Montreal, P.Q.

TRADEMAN



Receiver of type 304 Crucible Rezistal® stainless steel fabricated by O. G. Kelley and Company for the Rotareaed Corporation.

# why it cost less to use stainless

This vessel improves the quality of paper stock. It is the receiver unit in the "Deculator" process, which removes all gasses from the wet stock in paper-making operations.

These receivers used to be made of carbon steel, lined with a phenolic resin. But the designers, The Rotareaed Corporation, wanted a material that could better withstand the highly corrosive nature of some paper stocks and the erosion that normally takes place within the receiver.

Then Crucible stainless steel, type 304, was tried. In the long run it proved to be less expensive. For stainless *fights* corrosion. Because it is almost impervious to oxidizing acids, it

resists attack by corrosive paper stocks.

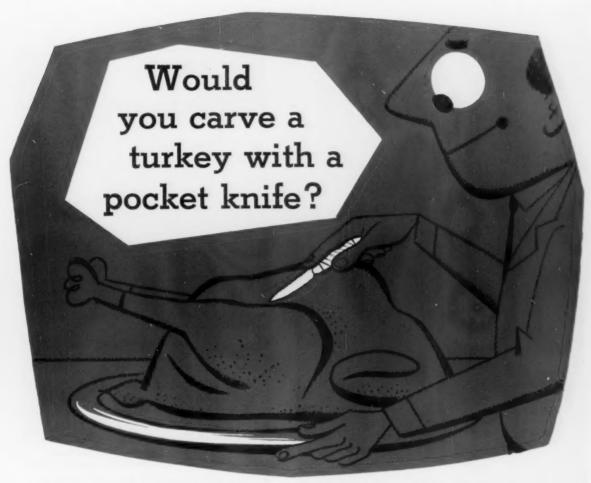
What's more, the erosion that used to be so costly in previous receivers has an insignificant effect on stainless. With its tough, abrasion-resisting surface, stainless often outlasts other metals scores of times in erosive or abrasive environments.

As a leading stainless steel producer, Crucible has much application and fabrication data to offer you. You'll find a great deal of this type of information in "Making the most of Stainless Steels in the Pulp and Paper Industry." Write for your free copy. Crucible Steel Company of America, The Oliver Building, Mellon Square, Pittsburgh 22, Pa.

CRUCIBLE

first name in special purpose steels

Crucible Steel Company of America



You could, but it's more efficient to use a carving knife. You always get
better results with the knife specifically designed for the job. That's why
"OK BATTLE AXE" Chipper Knives improve your chipping operation.
They're especially designed to do the job best, to give you maximum production of uniform chips with a minimum of sawdust and splinters.

begins with the selection of special high alloy steel which is thoroughly and evenly hardened in salt bath furnaces, then carefully tempered to produce dependable, durable blades. Extra-keen OK cutting edges hold up longer under

"OK BATTLE AXE" superiority

high impact loads without chipping or shelling and deliver longer runs between regrindings than ordinary knives.



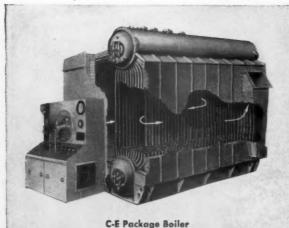
Stop robbing profit to pay for downtime. Improve your overall chipping operation. Specify ... install ... "OK BATTLE AXE" Chipper Knives. Made to fit all makes of paper mill and saw mill chippers. Many sizes are stocked at Cincinnati, Ohio, and Portland, Oregon.

For complete information on "OK BATTLE AXE" Chipper Knives, write Dept. 46-F.

## THE OHIO KNIFE CO.

CINCINNATI 23, OHIO

Manufacturers of OK HOG KNIVES, VENEER KNIVES, CHIPPER KNIVES, PLANER KNIVES









**C-E Recovery Unit** 

# Need Steam?

See C-E!

If you need steam and are concerned with how best to burn fuel to generate it efficiently, reliably and economically — See C-E.

Why? Because C-E has a complete line of steam generating and fuel burning equipment both standardized and custom-made to fit all the specialized requirements of the pulp and paper industry. No matter whether you burn Black Liquor, Waste Sulfite Liquor, Bark, Hogged Wood, Coal, Oil or Gas, C-E offers you equipment designed specifically for each job.

The acceptance accorded C-E equipment by the Pulp and Paper Industry is evidenced by the following facts.

- 1. Since 1945, leading pulp and paper mills have purchased C-E boilers for power and/or process requirements having an aggregate capacity of more than 15,000,000 lb of steam per hour.
- **2.** Since 1945, sixteen leading mills have reordered C-E power boilers. In fact, one internationally known paper company placed nine separate orders.
- 3. Since 1945, more than 100 C-E Chemical Recovery Units have been purchased by pulp mills throughout the world. These include units ranging in capacity from less than 100 tons to the world's largest, having a capacity in excess of 650 tons.
- **4.** Since 1945, nineteen leading pulp mills have reordered C-E Recovery Units; of this number four mills have reordered twice and two mills three times.
- 5. The C-E Bark Burning System has been installed in numerous pulp mills at home and abroad. Performance records show greatly increased efficiency and substantial savings over old fashioned bark burning methods.

These are but five indications of the widespread acceptance of C-E equipment in the pulp and paper industry. They are five good reasons why, before you buy, you should See C-E.

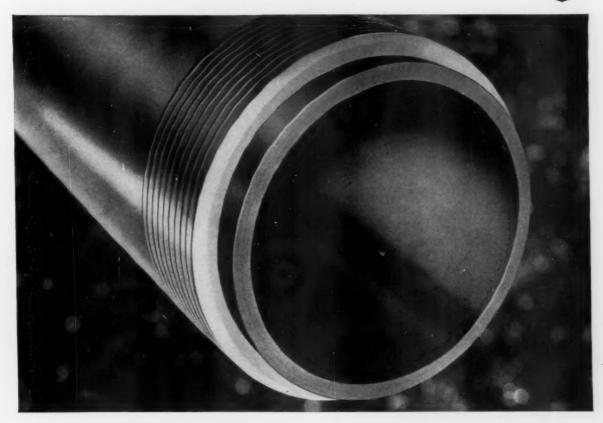
### COMBUSTION ENGINEERING



Combustion Engineering Building 200 Madison Avenue New York 16, N. Y.

B-929

steam generating units; nuclear reactors; paper mill equipment; pulverizers; flash drying systems; pressure vessels; home heating and cooling units; domestic water heaters; soil pipe



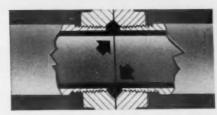
## You can see why Saran Lined Pipe prevents corrosion

Acids, alkalis and other corrosive liquids never touch the rigid steel pipe . . . it's continuously lined with durable, corrosion-resistant saran

Say good-by to corrosion problems when you install saran lined pipe, fittings, and valves. This combination of corrosion-resistant saran swaged into rigid, non-bursting steel has a proved record of corrosion prevention in the chemical, petroleum, waste, pulp and paper, metal finishing and food processing field.

Saran lined pipe, fittings and valves form tight, snug, leakproof joints . . . is available for working pressures up to 150 psi. Fittings and valves are also available in steel for working pressures to 300 psi. You'll be amazed how easy and economical it is to install this modern piping, too. For it can be cut and threaded in the field with available pipe fitters' tools. And because it's rigid, a minimum of supporting structures are needed.

For further information on saran lined pipe, fittings, and valves send in the coupon on the right today. THE DOW CHEMICAL COMPANY, Midland, Michigan.



Liquid never touches metal in Saran Lined Pipe even at a flanged connection like this.

Saran Lined Pipe Cor 2415 Burdette Avenu Ferndale, Michigan	
Dept. SP627E	
Please send me infor and fittings.	mation on saran lined pipe, valves,
Name.	Title
Company	
Address	

Saran Lined Pipe is Manufactured by The Dow Chemical Company, Midland, Michigan

you can depend on DOW PLASTICS

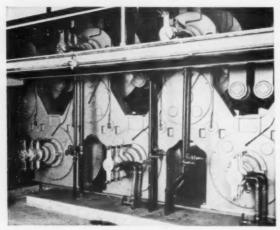


# For paper machine dryers with rotating syphon pipes

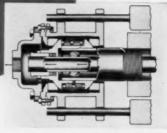
#### Type LN JOHNSON JOINTS



Type LN Johnson Joints on paper machine with exposed gearing, Support rods are hung from framing.



Type LN Johnson Joints on machine with enclosed gearing. Support rods are fitted to bosses provided by machinery manufacturer. Installation includes Compensators (see right).



Cross section view of Type LN. Inlet is in side of body; outlet can be as shown or with angle head as in installation views.

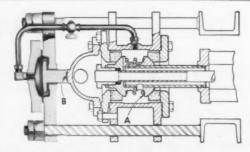
Johnson Type LN answers the problem neatly enough by accommodating the syphon pipe as an integral part of the rotating assembly. The pipe is still permitted longitudinal movement; the Johnson Joint requires no lubrication or adjusting.

SYPHON PIPES that must rotate with the dryer roll require

a specialized type of steam joint. The

The mounting of the Type LN provides a "floating action" that assures maximum service life. Simple rods, which fit into lugs cast on the joint body, carry all the weight of the body and connections. The sealing mechanism floats freely inside.

Months and even years of service without a bit of attention have proved the Type LN the best steam fit yet devised for this service. A trial joint installation can be arranged in your own mill, without any obligation on your part.



#### The Johnson Load Compensator

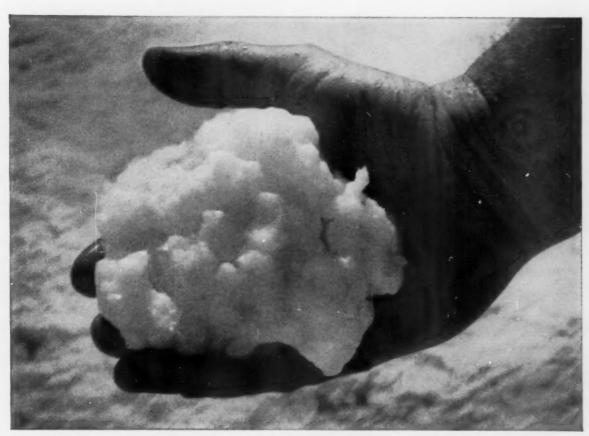
Developed in response to increasing operating speeds and pressures. Teams up with the LN Joint; mounts on same support rods. Utilizes pressure within joint to exert a force against joint body, which in turn reduces friction load at the seal ring. Cuts power needs of joint in half; doubles seal ring life; slashes down time and maintenance.



#### Products of The Johnson Corporation

849 Wood St., Three Rivers, Mich.

Direct Operated Salenaid Valves \* "Instant" Steam Water Heaters



Photograph of Western Hemlock pulp bleached snowwhite at world's largest specialty paper mill-The Camas Division, Crown-Zellerbach Corpora

#### **Partners in Pulp and Paper**

**Sodium Chlorate** Chlorine **Caustic Soda** Anhydrous Ammonia controlled chemicals serve well the West, Canada and Alaska. Write or telephone for

Two PENNSALT plants located in the Pacific Northwest make an important contribution to the pulp and paper industries and to many other users of basic chemicals. Nearby plants mean economies in transportation; dependable supply and prompt delivery; reduction of inventory requirements. PENNSALT quality controlled chemicals serve well the West, Technical Service.

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1850-1956



# Sludge "fit" for reburning

St. Regis Paper Co. installed three more ACCELATOR® treating units, duplicates of a unit installed in 1951, because—in addition to providing treated water of the desired characteristics—the "ACCELATOR" unit produces a calcium carbonate sludge suitable for reburning to provide quicklime for other plant requirements.

To be suitable for reburning, the calcium carbonate sludge should be substantially free from magnesium and silica to prevent the "build-up" of these constituents in other plant processes in which the calcined sludge is used. The "ACCELATOR" treating unit is particularly well adapted to producing high purity calcium carbonate sludge because it utilizes mechanically maintained slurry recirculation, regardless of through-put. This affords rapid and complete dispersal of the treating chemical into the water slurry mixture, thus avoiding localized over-treatment which precipitates the unwanted magnesium hydroxide with consequent silica absorption.

For producing calcium carbonate "fit to burn" use "ACCELATOR" treating plants as many other Kraft mills have done. Write for Bulletin 1825-PP-17 P.S. The "ACCELATOR" unit is also suitable for clarification and color removal problems.



Inquiries are also invited on all other water and waste treating problems including coagulation, precipitation, sedimentation, filtration, flotation, ion exchange and biological processes.

#### INFILCO INC.

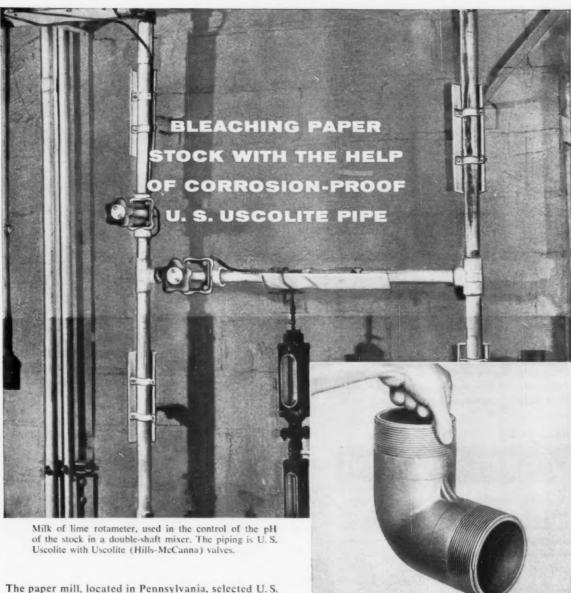
General Offices Tucson, Arizona

The one company offering equipment for all types of water and waste treatment



5617

Field Offices throughout the United States and foreign countries



The paper mill, located in Pennsylvania, selected U. S. Uscolite® plastic pipe because it's immune to the corrosive chemicals used in the bleaching process, and requires no upkeep. The piping previously used just couldn't stand the gaff.

Made by United States Rubber Company, Uscolite is an extremely tough but lightweight thermoplastic pipe. It imparts no odor, taste or discoloration. It is threaded and assembled with ordinary piping tools—without special preparation. Uscolite is in use in thousands of installations in every industry where constant control of chemicals, acids or corrosion is a problem.

Uscolite pipe and fittings are made in the broadest and largest line of stock sizes on the market. Sizes run from 1/2" to 6".

For replacement or completely new piping, get in touch with any of our selected distributors or any of the 28 "U.S." District Sales Offices or write us at Rockefeller Center, New York 20, N. Y. Immediate delivery of standard sizes and threaded fittings. The Hills-McCanna Uscolite valve is available for your piping assembly.



Mechanical Goods Division

## **United States Rubber**

PULP & PAPER-1956 Review Number

# CHECK THESE FEATURES OF DeZURIK CONSISTENCY REGULATORS



DeZurik Regulators are guaranteed to hold paper and board furnish consistency to within limits of plus or minus .1%. Many DeZurik Regulators in operation directly ahead of paper machines are holding consistency to plus or minus .02%! Response is instantaneous to changes in incoming stock.

# SIMPLE ADJUSTMENT

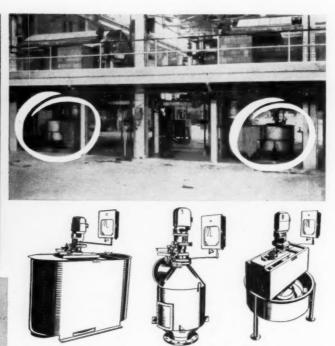
A single knob changes the regulated consistency and the change is immediately indicated on the chart of the controller-recorder. Settings can be precisely duplicated. This feature is important on installations ahead of refiners where different grades of furnish can be improved by refining at different consistencies.

## DEPENDABLE OPERATION

Spattering stock cannot affect the sensitivity or accuracy of DeZurik Regulators. No levers, joints or bearings are exposed to the stock . . . . no rapidly moving or delicate parts to require frequent adjustment. Feeler blades are non-fouling—foreign material will not hang up.

## 24-HOUR RECORDING

The operation of DeZurik Regulators is completely automatic. The controller-recorder delivers a 24-hour recording, charting both incoming and outgoing consistencies . . . preserving a graphic picture of stock-system variations.



The precision and dependability of DeZurik Stock Consistency Regulators have been proved in many thousands of installations. Modern instrumentation plus a highly responsive mechanism achieves maximum accuracy with minimum attention.

Three basic types can be adapted to every requirement. The Stuff Box type is used widely on installations ahead of paper and board machines or ahead of a finishing refiner.

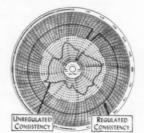
The Pipe Line type is installed on closed systems—systems under pressure. The regulator handles the entire volume of stock. The full capacity of the pump can be utilized because no sample is returned.

The Pan type regulator is designed to take gravity flow of stock from filters, washers, deckers, savealls, etc., without the necessity for pumping the stock to the regulator.

ALSO AVAILABLE: The DeZurik Closed Stock System for

Paper Machine Supply, providing improved sheet formation, higher machine operating speed, elimination of air from the system, completely remote operation and other advantages in an engineered, low-cost package unit.

WRITE for complete information on DeZurik Regulators.



DeZURIK SHOWER CO. Sartell, Minn.



# HANCHETT Knife grinders for GRINDING - HOG - BARKER - PAPER TRIMMER and DOCTOR BLADES

for finest finishes

#### EXTRA HEAVY DUTY

MECHANICAL OR HYDRAULIC TRANSMISSION DRIVES

speeds: 10' to 100', 30' to 150' and faster

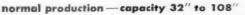
motors: 71/2 h.p. to 40 h.p. weights: 10 tons up to 40 tons capacity: 84" to 360" and longer

drives: Mechanical or hydraulic head carriage for flat or concave bevel grinding

other models:







#### The NEW

MODEL

#### SLITTER KNIFE GRINDER

(Wet Grind)

#### for CIRCULAR

Top or Bottom SLITTER KNIVES

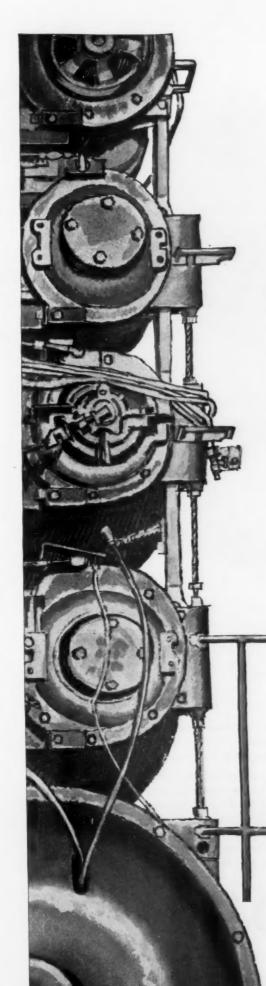
OF ALL TYPES

- · finest finishes
- · extreme accuracy
- · rigid construction
- · capacity 3" to 24" diameter
- · semi or fully automatic
- · positive and accurate fixturing

#### HANCHETT MANUFACTURING COMPAN'

World's Largest Manufacturer of Knife Grinding and Saw Sharpening Machinery MAIN OFFICE - Big Rapids, Michigan WEST COAST - Portland 1, Oregon





To the mill executive who decides on lubricants-

# Three good reasons for specifying STANOIL Industrial Oil

- 1 The increased demand for paper products results in machinery being operated at speeds higher than rated capacity. Continuous production has placed greater burdens on lubricating oils. Without the best lubrication, equipment failures may occur. Best idea is to specify Stanoil Industrial Oil.
- **2** Cost of repairs and replacement of parts added to the loss of production, run many times the cost of lubrication. A small investment in Stanoil Industrial Oil is the best possible protection against bearing failures, repair costs and production loss.
- **3 STANOIL Industrial Oil** can be used in a multitude of applications. Inventories of lubricants can thus be reduced and the danger of lubrication failure due to misapplication can be cut or even eliminated.

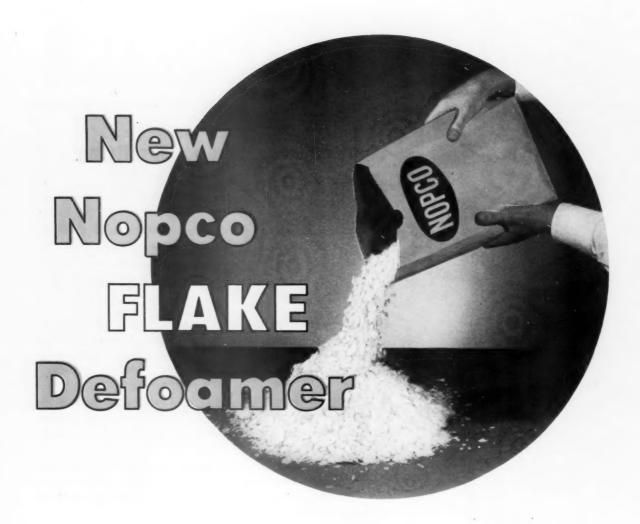
Get more facts about STANOIL from your nearby Standard Oil lubrication specialist. There is one near you in any of the 15 Midwest and Rocky Mountain states. Or write Standard Oil Company, 910 South Michigan Avenue, Chicago 80, Illinois.

#### **Quick Facts About STANOIL Industrial Oil**

- Stability—STANOIL's antioxidant gives oil resistance to chemical change, minimizes deposits.
- Rust Prevention—Inhibitor in STANOIL "plates out" on metal surfaces, prevents corrosion.
- Cold Starts—STANOIL has low pour point. Flows freely from cold start. No need for costly warm ups.
- Resists Effects of Temperature Change—STANOIL has high viscosity index, is resistant to temperature change. Lubricates in both high and low temperature service.
- Has Excellent Demulsibility— STANOIL is refined to eliminate emulsion problems, contains additive to minimize foaming.

STANDARD OIL COMPANY
(Indiana)





#### controls foam even on heavily colored grades

Nopco KFC, new flake defoamer, gives unequalled foam control—even on colored paper where foaming is especially troublesome...makes it far easier to turn out uniformly colored stock. Nopco KFC emulsion is exceptionally stable and will hold its stability for days, even without agitation...so helps give sure results and cut down waste at the same time.

Nopco KFC is solid for easy transportation and storage, flaked for easy dissolving. It is packed in 10-lb. packages, particularly time saving and economical when you want

only small quantities of defoamer. It can be dissolved and applied at fan pumps, headbox or wherever foam control is necessary. Extremely easy to use.

This is still another defoamer added to the complete Nopco line of paste and liquid defoamers—comprising the widest range of defoamers available to the paper mill industry. All our experience with defoamers and other paper-making chemicals is at your service. Why not consult your Nopco man on your production problems today! Nopco Chemical Co., Harrison, N. J.



PLANTS: Harrison, N. J. Cedartown, Ga. • Richmond, Calif. London, Canada



# TANNATE BELT STILL PRACTICALLY MAINTENANCE FREE AFTER SIX YEARS OPERATION

The Chipper drive you see above was installed at the American Box Board Company's Filer City Mill in August, 1950. One year later it was reported that they had practically forgotten about this drive from a maintenance standpoint.

Four years later they again reported that Rhoads Tannate Uni-Pull drive was still practically maintenance free!

Now, again after six years rough, tough operation, they still report that the Tannate Belt is operating very satisfactorily.

That's quite a feat when you consider that this drive transmits power surges of over double the full-load torque. The 400 HP, 720 RPM wound motor and the driver pulley shaft are flexibly connected, and mounted on a pivoted base. Since there is no motor bearing pressure from belt tension, the use of a standard short shaft is possible. To give an idea of the physical size of the drive, it should be noted that the motor shaft is approximately six feet above the floor line. The base on which the motor is mounted is about ten feet long and weighs approximately three tons complete. This is one of many such installations that demonstrates the superiority of Tannate flat leather belting to deliver a smooth flow of power and maintain constant draws with few adjustments. We'll be glad to give you the complete story on Tannate and its many low cost features.

#### what is Tannate® ?

Tannate is the trade name for the special tanned leather developed and produced by J. E. Rhoads and Sons especially for the manufacture of flat leather belting. It combines exceptional grip, pliability, elasticity, strength, and durability. It will resist moisture, mineral oils and the fumes of most acids—will withstand high temperatures (212°F. dry, 170°F. moist).

For the full story on Tannate write J. E. Rhoads and Sons, 2100 West Eleventh Street, Wilmington 99, Delaware.

RHOADS
INDUSTRIAL LEATHERS

WILMINGTON . NEW YORK . CHICAGO . ATLANTA

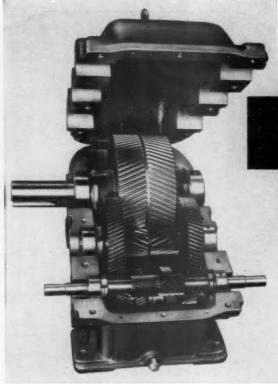


Photo shows triple reduction speed reducer, typical of Western Gear's high quality design and construction.

#### POWER TRANSMISSION TIPS

#### How To Use Service Factors Correctly In Selecting Gear Units

By Glenn Jorn

Industry Specialist-Forest Products, Western Gear Corporation

Experience in the gear industry has led to the adoption of a rule of thumb:

"The life of a gear unit increases in proportion to the cube of the service factor."

To illustrate this we have shown in the table below how much additional life can be gained with a small increase in service factor.

Original S. F.	Increased S. F.	Resulting Increased Life		
1.0	1.25	Nearly Doubled		
1.25	1.50	1.73		
1.50	1.75	1.58		
1.0	2.0	8.0		

The first example in the table shows that you can nearly double the expected life of a gear unit by increasing your service factor from 1.0 to 1.25. The cube of 1.0

is still 1.0 and the cube of 1.25 is 1.95. The increased life shown in the last column is obtained with a very small increase in first cost.

Catalog HP ratings are for 8 to 10 hours' service per day under uniform loads. Manufacturers' catalogs show tables that classify your load and recommend service factors for most standard applications. If there is anything about your application that is unusual, or if downtime would be unusually costly, a more thorough study of service factors is warranted.

Gear units are designed to handle *momentary* overloads up to double the catalog rating without failing. The thermal rating is the load that the gear unit can continuously transmit under normal ambient conditions without overheating. The thermal rating should equal or exceed the HP transmitted before applying any service factor.

In well organized lumber, pulp and paper industries, shutdown periods are planned and scheduled beforehand. An unscheduled shutdown resulting from gear failure can be extremely costly in lost production, time and dollars. It can even become a safety hazard. Extra service factor is the least expensive insurance obtainable against such failures and loss.

A test stand is used only intermittently and may become obsolete in a few years. For this application strength is more important than wear, and a minimum service factor may be adequate. One precaution—if it is a variable speed test stand, be sure to size your components on the maximum torque condition and specify your maximum speed.

If every 0.1% efficiency is of great importance, remember that heavily loaded gear units are generally more efficient than lightly loaded gear units. This may call for a decrease in service factor.

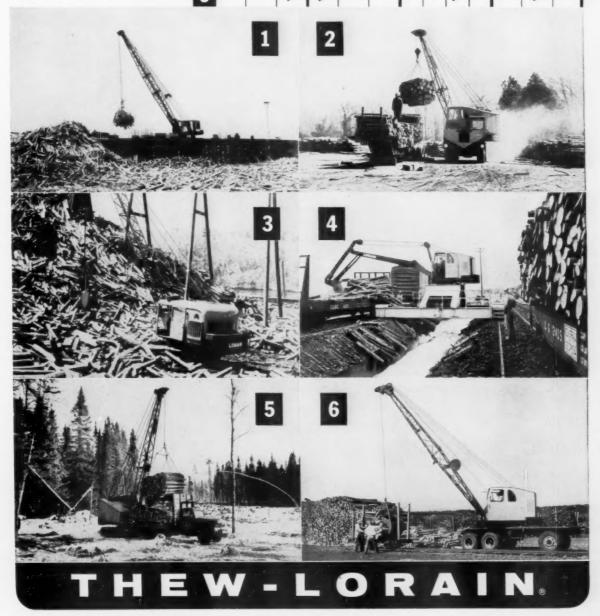
Take advantage of the services of your Western Gear application engineer. He can make available to you experience accumulated since 1888 by Western Gear, a leader in the field of design and manufacture of mechanical power transmission equipment. A complete line of speed reducers is offered in all shaft arrangements, horsepowers and ratios to solve your gear drive problem efficiently and economically. Write on your letterhead for Bulletin 5402 which gives details and engineering data. Address General Offices, Western Gear Corporation, P.O. Box 182, Lynwood, California.

#### CHECK LIST FOR PULPWOOD HANDLING

If handling pulpwood is one of your operations, you will want to check the chart at the right. Look under the location of the job—the kind of wood—the device needed—and the mounting required. You'll be referred to a picture below that shows how Lorains have already solved the problem. Your problem, too, can be solved with a Lorain. Ask your nearby Thew-Lorain Distributor to help you.

THE THEW SHOVEL CO., LORAIN, OHIO

SEE PHOTO	LOCATION			KIND OF WOOD		DEVICES			MOUNTINGS				
	WOODS	YARDS	MILLS	STACKED	WET	JACK STRAWED	SLINGS	GRABS	GRAPPLES	RAKES	CRAWLER	RUBBER	SPECIAL
1		100			100	10		100			100		
2		100		10			100					100	
3			100			10		100			100		
4			10	10						1			1
5	10			10			10				Lest.		
6			10	10					V			10	



#### you get more than felts

Better paper finish? Faster water removal? Increased production? Whatever your felt problem, it's our problem, too.

Our applied experience—our modern, creative research facilities—our desire to work with you . . . these are the resources and services always available to you.

As an ever-increasing number of mills are learning, you get more than felts from Appleton.

> SISTER ACT-Our continuous program of modernization means better methods and machines for better felts. But this program would be meaningless without people like Anne Schulze and Marie Brum . . sisters whose combined 32 years of experience and devoted skill pay off for you on the paper machine.





APPLETON WOOLEN MILLS

a working partner with the paper industry

to meet the increased demand for <u>colored</u>

# BIFACIED

Paper and Board

National Aniline now offers a wide range of colors plus the technical know-how to help you in developing the most economical techniques in their application.

With new end uses multiplying day by day, Bleached Kraft has become a fast-growing phase of the paper industry. If you are interested in the high-profit margin of colored Bleached Kraft be sure to specify NATIONAL PAPER DYES.

NATIONAL PAPER DYES

NATIONAL ANILINE DIVISION ALLIED CHEMICAL & DYE CORPORATION . 40 RECTOR ST. NEW YORK 6, N. Y.

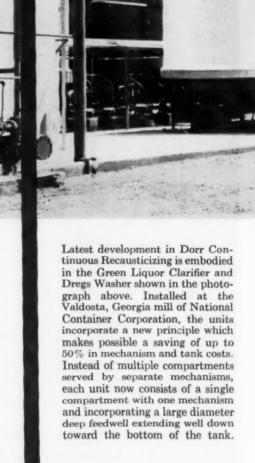
Baston Fravidence Philadelphia Chicago Sun Francisco Portland, Ore. Greensbere Charlotte Richmend Atlanta Les Angeles Columbus, Go. New Orleans Chatteneoga Cleveland Toron



# New Development

#### in Dorr Continuous Recausticizing System

Substantially Reduces Initial Costs...
Simplifies Operation





The ratio of depth to tank diameter is adjusted to bring into balance the various functions essential to good clarification. Hydraulically, the flow patterns produced are controlled to make maximum utilization of overall tank volume.

This recently proven principal of Selective Density Feeding as

applied to the Dorr System means substantially lower investment costs, lower maintenance costs, and simplified operation. In existing Systems the green liquor station can be converted to this new unit design and in most cases will give equal performance to that of tray units with the added advantage of greatly simplified operation.

The remainder of the Dorr

System at Valdosta is standard in all respects and includes two Oliver Lime Mud Filters, both 6' diameter by 6' face.

If you'd like more information on these new developments in the Dorr Continuous Recausticizing System, write Dorr-Oliver Incorporated, Stamford, Conn. In Canada, 26 St. Clair Ave. E., Toronto 5.



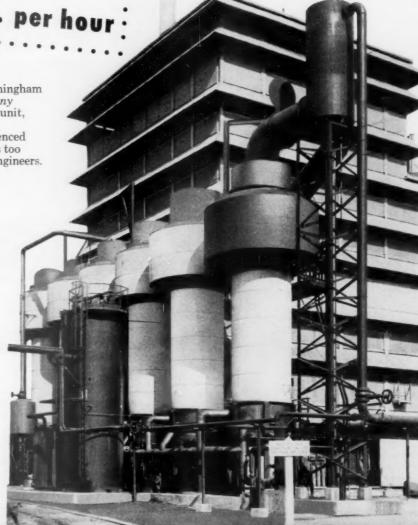


290,000 lbs. per hour

Take your choice! Goslin-Birmingham will design a unit to handle any required evaporation. Every unit, regardless of size, is designed specifically for you by experienced chemical engineers. No unit is too large or too small for G-B engineers.

The illustration shows a Goslin-Birmingham six-body sextuple effect evaporator of advanced design at the Halifax Paper Co., Roanoke Rapids, N.C. The outdoor installation requires only a pad for the Goslin-Birmingham self-supporting design, requiring a minimum of floor area.

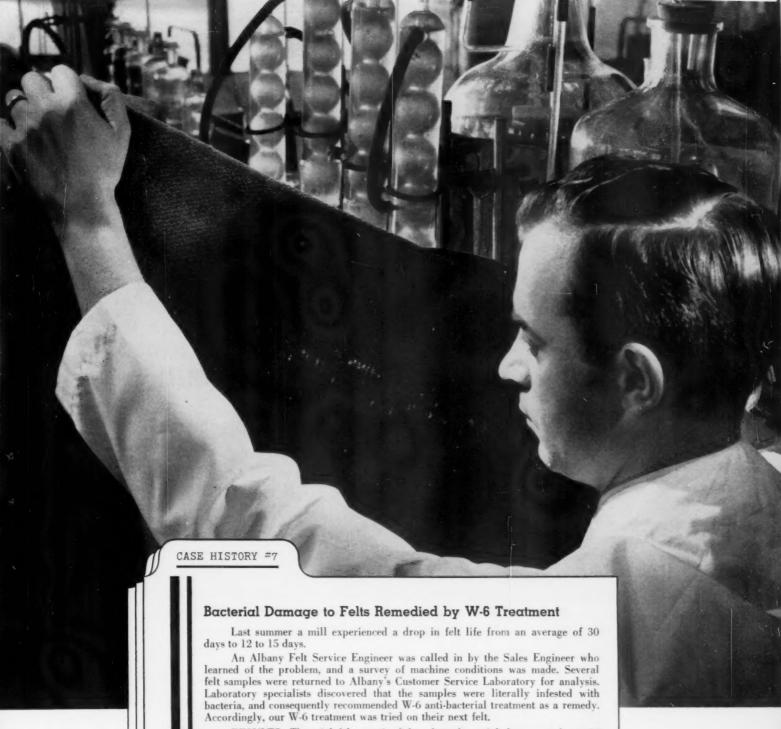
If you have an evaporation, filtration, or flaking problem, do not hesitate to contact Goslin-Birmingham. Our years of experience in many fields are available without charge, and at no obligation.





GOSLIN-BIRMINGHAM MANUFACTURING CO., INC.

BIRMINGHAM . ALABAMA



RESULTS: The trial felt remained free from bacterial damage and ran 34 days! It not only proved outstanding in every respect, but could have run longer if it had not been removed during a scheduled shutdown. W-6 treatment has been used on all felts since then, with every felt having a life above the old 30-day average, and many exceeding 35 days despite the existence of severe bacterial conditions.

For improved felt performance on your machines, call in your Albany Felt Sales Engineer. His analysis of your problems, together with the efforts of the industry's top team of Service Engineers, Designers, Research and Laboratory Specialists, will bring you the famous "blue line" felts you need to help produce more saleable tons per day!



#### ALBANY FELT COMPANY

"THE WORLD'S LARGEST MANUFACTURER OF PAPER MACHINE FELTS"



CUSTOM COVERED THE WAY Gow WANT THEM

#### FOR TOP PERFORMANCE AND LONGER SERVICE LIFE

Routine repeat orders from major paper mills are proof that
GRIFFITH rubber coverings give dependable service. Forty-five
years of experience goes into every covering.

Specialized skills are being developed and modern production
equipment is being added continuously. Constant precision
laboratory controls assure the customer of best operation.

GRIFFITH of Portland is the only rubber mill West of the
Mississippi River equipped for precision drilling of rubber covered
suction rolls. All types of roll coverings are our specialty.

WRITE, WIRE OR
TELEPHONE FOR AN
ESTIMATE ON YOUR JOB

Griffith RUBBER MILLS

2439 N. W. 22ND AVENUE PORTLAND 10, OREGON Telephone: CApitol 3-7126

# A Griffith EXCLUSIVE

A special rubber covering releases the sheet, thereby eliminating picking and crushing. Costly breaks are prevented. This softer roll gives better water removal and longer felt life. In many installations doctor blades may be entirely removed from the machine.



#### GRIFFITH S.D.T. LICENSES ISSUED TO:

Woonsocket Rubber & Plastics Products Co., Inc., Woonsocket, R. I. N.V. Rubberfabriek, Vredestein, Holland Trelleborgs Gummifabriks, Aktiebolag, Sweden



Optical test. With doctor in working position, inspector at Lodding Engineering Corporation checks "K" Monel blade for

straightness. "K" Monel is extra strong, extra hard. It offers high resistance to wear and corrosion... and does not feather-edge.

#### Blades made of "K" Monel\*...

# pass all on-the-job tests, too!

Frequent changes of doctor blades — you know what they do to production schedules and costs!

Why let them — when LODDING ENGINEERING CORPORATION makes blades of corrosion-resisting "K" Monel age-hardenable nickel-copper alloy?

"K" Monel blades run two to five hours between grinds, depending on the paper you're making. Their surfaces stay smooth... wear uniformly. Your rolls are left clean and unscored. There's no fibre buildup. No scratching. And they last lots longer than most blades.

LODDING recommends "K" Monel. For all types of creping service. For nearly all metal rolls on your paper machines. See how "K" Monel helps to keep your production up . . . and to hold your costs down.

LODDING ENGINEERING CORPORATION, makers of qual-

ity blades, can supply your needs for all types of "K" Monel doctors. Write Lodding — Dept. K; Worcester, Mass. — for more information. And write us for help in picking the right metal for any corrosive job in your mill!

THE INTERNATIONAL NICKEL COMPANY, INC. 67 Wall Street New York 5, N. Y.



"K" Monel



Your Huyck Field Service Engineer will be glad to make a survey of your mill, spending the necessary time it takes to help you uncover causes of high felt costs or troubles. His knowledge of felts and their application — coupled with his understanding of the problems of papermaking — enables him to make recommendations that will help you.

To assist him in his survey . . . he uses the most advanced of precision instruments to determine exact measurements of felt running length and tension . . . make moisture tests . . . check synchronization of machine parts . . . and provide other information pertinent to the manufacture of your paper.

Many mills are gaining advantages and economies by having their Huyck Field Service Engineer make surveys regularly. You, too, will find this Huyck service helpful in producing better paper at lower cost per ton; it's the largest and best equipped Field Service Organization in the industry.





The machine that produced a commercially acceptable sheet a few decades ago may fail to meet the new demands of today's competitive market. Or if quality is pushed higher, production may be too slow for profitable operation.

A new Puseyjones Machine can give you the high quality paper you want, in greater tonnage, with better profits. And your Puseyjones Machine is your assurance of meeting tomorrow's still higher production demands. That's because the finding of new pathways to increased speeds and larger profits is a 90-year-old tradition at Puseyjones.

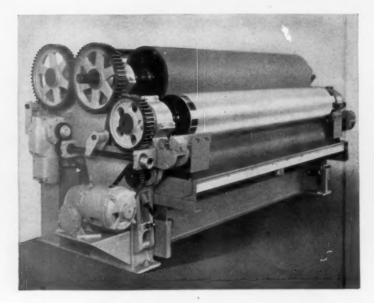
When you need a new machine . . . or the modernization of an old one . . . you need the help of Puseyjones engineers. That help is yours for the asking. Call or write us today.



#### THE PUSEY AND JONES CORPORATION

Established 1848: Builders of Paper-Making Machinery Febricators and Welders of all classes of Sheel and Alloy Products Wilmington 99, Delaware, U.S.A. Egan

# OFFSET GRAVURE PRINT COATER



Designed for use in paper machine groups, the Offset Gravure Print Coater, clay-coats paper and paperboard at full paper machine speeds.

THE PROPERTY OF THE PROPERTY O

The end product is used in quality printed magazines and printed paperboard containers.



Send for pamphlets on coating, treating and laminating

#### FRANK W. EGAN & COMPANY

Somerville, New Jersey
Designers and builders of Machinery for the Paper
Converting and Plastics Industry.
Cable Address: "EGANCO"—SOMERVILLE (NJER)

Representatives:—Achard-Picard, Remy & Company, Paris · Bone Brothers, Ltd., London · H. W. Gottfried, Mexico City · Emanuel & Ing. Leo Campagnano, Milan ·



#### American Crawler Cranes Tread Lightly . . .

#### LOAD LOGS IN RUGGED TERRAIN

When the going gets tough, really tough, American Crawler Cranes are still moving—they wade through rough terrain easily with ground hugging assurance! American Crawlers—like this busy 300 Series log loader—are designed and built to move into the areas that might once have been bypassed as unprofitable for cutting.

Pulpwood operators find American's 300 Series doubly profitable. It has the power, balance and ruggedness to do the work of heavier machines, yet is light enough to be moved over highways without time consuming disassembly to meet weight limits!

American Crawler Cranes tread lightly, yet relentlessly because they have plenty of driving power that's delivered positively to strong, extra wide crawler pads. Twisting, racking forces can't phase the extra heavy crawler frame or massive cast steel carbody!

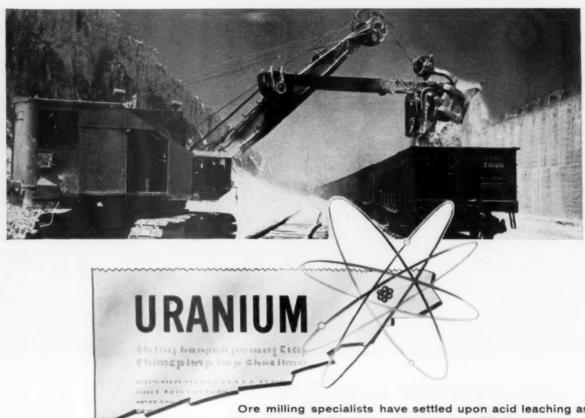
What American Crawlers do at the jobsite is another amazing story of job production—a story you can get from any owner or operator—available in sizes from ½ yd. up—crawler or rubber mounted. When you see an American in operation, stop, ask the operator how he likes it—the owner too. Get their story—then see your American Hoist distributor.

#### AMERICAN HOIST and Derrick Company

St. Paul 1, Minnesota

# SULPHUR

helps to create headline products



Ore milling specialists have settled upon acid leaching as the most practical and economical way to extract uranium values from ore concentrates. And as with so many other ore-leaching processes, sulphuric acid appears to be the best of the solvents, considering costs and availability.

So chalk up another 'headline' end-use for this most widely used of all acids! But this very broadening demand for sulphuric emphasizes the problem facing producers of the basic element SULPHUR. Search for new commercial sources goes on without let-up all over the world. This company is playing a leading role in this search.

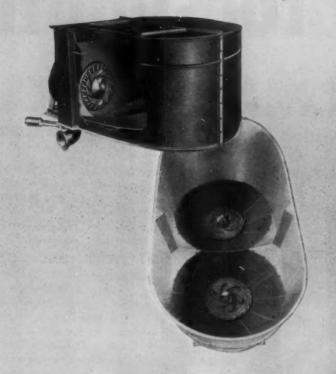


#### Texas Gulf Sulphur Co.

75 East 45th Street, New York 17, N.Y.

Sulphur Producing Units

- Newquif. Texas
- . Spindletop, Texas



#### This is BLACK-CLAWSON

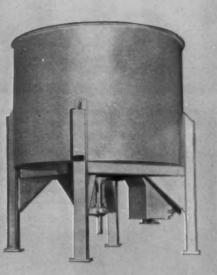
# ... still the leader in pulper sales and experience

Right now the Shartle Division has an order backlog for over 56 Hydrapulpers. Add this to the over 1500 in service all over the world and you have convincing evidence that Shartle and the Hydrapulper still lead the field in pulper building experience and sales.

From the complete line of Shartle Hydrapulpers, Hydrabeaters, Duopulpers and broke pulpers, you can select a unit to meet your specific mill requirement... a pulper that will give you the exact degree of defiberization you need at less HP/T per day.

Rely on the unmatched experience and engineering skills of Black-Clawson. Contact the Shartle Division for full details on pulping, deinking, blending, mixing or broke pulping applications.







# How to simplify



The Bailey Building Block Method enables you to simplify mill control problems by combining standardized measuring, transmitting, and controlling components as required.

# control problems

Keep systems flexible, carry small inventory, cut maintenance cost with the Bailey Building Block Method of instrumentation and control.

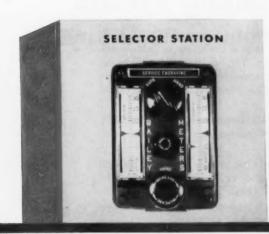
What is the Bailey Building Block Method? It's using standardized Bailey measuring, transmitting, and controlling components and combining them into any system you need. Components can be added as needed . . . removed and reused elsewhere . . . recombined into another system when the need changes. It's flexibility plus!

It's all based on the simple fact that a Bailey instrument or control component doesn't care if the measured variable is tank level, digester temperature, or paper room humidity, to pick just three of a mill full of examples. System components-transmitters, receivers, relays. selector stations, power units-are standardized for multi-purpose use.

A spare component can be used in any one of many systems. Gone are delays waiting for shipments of special parts. Gone are large inventories of spares and parts. Simplified is the training of men for maintenance.

There are many exclusive features and advantages of the individual components used in the Bailey Building Block Method. And there's much more to the Building Block story itself.

For further details, write to our Pulp and Paper Division. Our engineers will be glad to prove how the Building Block approach will save you money and simplify your instrument and control problems.





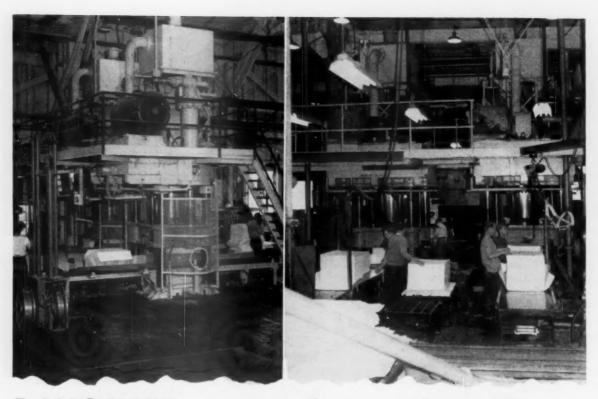


#### METER COMPANY

APER DIV., 1037 IVANHOE ROAD, CLEVELAND 10, OHIO

RESULTS IN: FLEXIBILITY, SIMPLICITY, ECONOMY





# RAYONIER equips four pulp mills with WASHINGTON pulp baling Presses

Listed below are the outstanding producers of dissolving and kraft pulp who use Washington designed and built pulp baling presses.

> BUCKEYE CELLULOSE CORP. Foley, Florida

WEYERHAEUSER TIMBER CO. Everett, Wash.

> RAYONIER, INC. Shelten, Wash.

> RAYONIER, INC.

RAYONIER, INC.

RAYONIER, INC.

BOWATERS SOUTHERN PAPER CORP.
Calhoun, Tenn.

EAST TEXAS PULP & PAPER CO.

KETCHIKAN PULP CO. Ketchikan, Alaska The Rayonier chemical cellulose mills at Port Angeles (left above) and Shelton, Washington (right above) are the latest mills to be equipped with Washington rapid traverse pulp baling presses. In both cases, two Washington 1,000-ton presses were selected to replace older and smaller equipment.

Washington pulp baling presses have previously been installed in the Rayonier mill at Hoquiam, Washington, and in the new pulp mill at Jesup, Georgia.

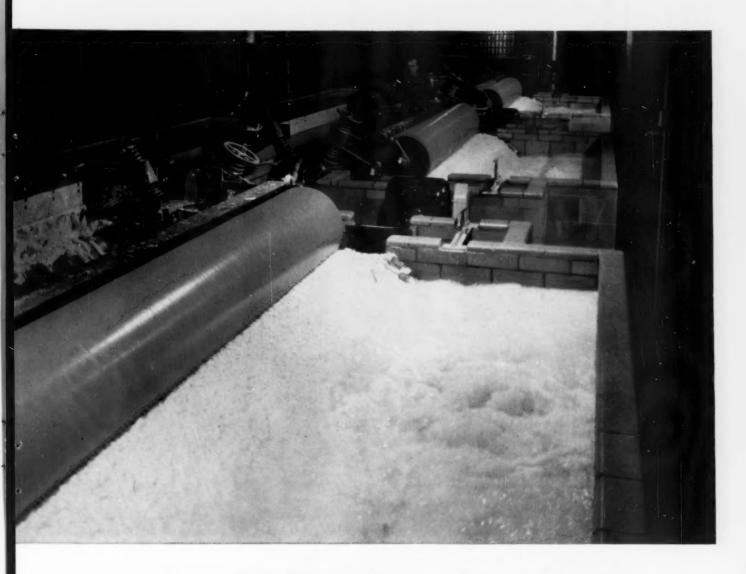
Washington rapid traverse pulp baling presses have been chosen by many other recently constructed or newly equipped mills throughout the United States and Alaska, as listed at the left. In every instance they are more than paying for themselves in increased production and reduced operating expenses.

Inquiries for standard presses from 600 to 1600-ton capacity, or for special presses and accessories, will bring complete information promptly.

1500 6th Ave. South, Seattle 4, Wash.



WASHINGTON IRON WORKS



## Impco Open Cylinder Deckers at Brown Company

These 48" x 144" open cylinder couch roll deckers are handling 450 tons daily of unbleached sulfite pulp.

These units at Berlin are of all type #316 stainless steel, utilizing the original Sherbrooke design of perforated deck construction.

High unit capacity as well as quality pulps are primary demands in Brown's modernization program.



# IMPROVED MACHINERY INC.



Write for full information and a sample of Thiele Coating or Filler Clay for your particular use.

- HIGH BRIGHTNESS
- UNIFORM LOW VISCOSITY
- UNIFORM LOW MOISTURE CONTENT
- UNIFORM LOW SOLUBLE SALT CONTENT

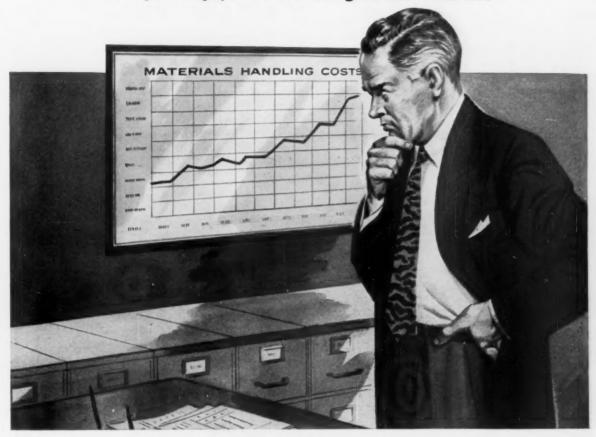
UNLIMITED RESERVES

Thiele Kaolin Company

P. O. BOX 270 . SANDERSVILLE, GA.

#### THERE'S A BETTER WAY...

to move your dry, pulverized and granular materials



### IRVEYOR

If you handle mill supply chemicals, brewers' grains, bakery ingredients, granular plastics, or other dry, pulverized or granular materials, your handling costs may be running as high as 40% of each labor dollar you pay out. A good share of this is money down the drain that can and should be eliminated, while simultaneously releasing manpower for more skilled work.

The Airveyor flows your materials through ducts with airfrom unloading dock through storage to processing-and nothing moves but the material. It can be conveyed vertically, horizontally, around corners; outdoors, indoors-just about anywhere your operations lead. There is no waste, no spillage. Belts, buckets and other complicated mechanical parts are eliminated, reducing maintenance problems and costs to the minimum. The Airveyor is self-cleaning, and automatic switches and control panels permit one man to operate the system from a central switching point.

Fast, clean, safe, efficient and economical, the Airveyor is a result of more than a quarter century's experience with conveying by air. It can be used alone or with other Fuller systems depending upon the specific application. No other conveying system you could use has all its advantages. And you continue to save substantial amounts of both time and money from the day of installation.

Get the facts on the Airveyor as they apply to your operations. There is no obligation and they may point the way to reduced overhead costs you hadn't thought possible.



The Airveyor conveys dry, pulverized, granular, or crushed materials to and from carriers, storage areas, and processing points.

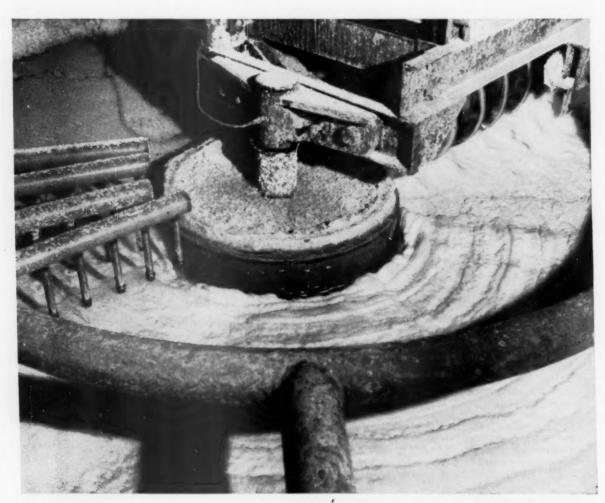
#### **FULLER COMPANY**

128 Bridge St., Catasauqua, Pa.

SUBSIDIARY OF GENERAL AMERICAN TRANSPORTATION CORP. Chicago · San Francisco · Los Angeles · Seattle Kansas City · Birmingham

# West End doubles capacity of salt cake plant

Acceptance of West End Salt Cake has spread so rapidly that we are enlarging our plant to produce over 100,000 tons a year. Even at this rate we are tapping less than 50% of our natural raw material supply. This output and reserve provides industry with a dependable source of highest quality salt cake to serve its growing needs. Samples, prices and freight schedules will be submitted gladly on request.





#### West End Chemical Company

SODA ASH . BORAX . SODIUM SULFATE . SALT CAKE . HYDRATED LIME EXECUTIVE OFFICES, 1956 WEBSTER, OAKLAND 12, CALIFORNIA . PLANT, WESTEND, CALIFORNIA

IN THE PAST 10 YEARS APPLETON MACHINE COMPANY B ALL THE SUPER ENDERS MADE OR ID IN THE UNITED

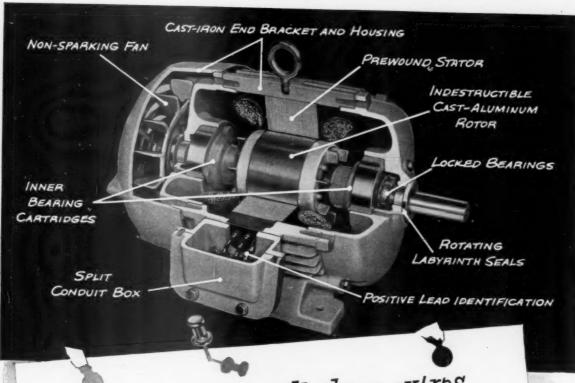
OPPLETON

STATES AND CANADA.

knowing and filling the needs of the paper industry

APPLETON MACHINE COMPANY

APPLETON WISCONSIN



# Are you getting all these extras in the motors you buy?

Louis Allis gives them to you in the new L. A. enclosed and explosion-proof motors

For years, Louis Allis has specialized in special motors for many of industry's toughest drive problems. Such installations call for extreme care in both motor design and manufacturecare that has become a habit with us. We build our enclosed and explosionproof motors with the same special

What does this mean to you? It means that you get a motor with extra fea-tures—a motor that runs better, lasts longer. Here are a few of the extra reasons why:

- These new motors carry Underwriters' label for use in four groups of haz-ardous locations—Class I, Group D, and Class II, Groups E, F, and G. This four-group approval for a sin-gle motor simplifies your stocking problem problem.
- New, exclusive phenolic impregnating varnish provides high thermal and chemical resistance. It remains resilient and resists aging, prolonging the life of the motor.
- Inner bearing cartridges lock bearings to end bracket and form explosion-quenching seal along the shaft.
   Inner race of bearing locked to shaft, reducing end play—an extra quality feature.
- Rotating labyrinth seals keep dirt and moisture out of the bearings— keep grease in.

There are many other features such as a new diagonally split conduit box, sturdy cast-iron construction, positive lead identification, non-sparking fan. Our new bulletin No. 1700 shows why you get extra value for your dollar in a Louis Allis explosionproof motor. Write for your copy.



New LA line explosion-proof motors are available in rerated frame sizes 182 through 326U, and in ratings of 1 to 30 hp, 3 phase, and 1 to 5 hp, single phase. Also available with Underwriters' approval for Class I, Group C hazardous locations.



THE LOUIS ALLIS CO.

07

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:56

%

# FOR CONTINUOUS, ECONOMICAL SEMI-CHEMICAL PULPING...

**ROTARY FEEDERS...** for introducing materials to be processed into steam pressure vessels.

**CONTINUOUS COOKERS...** where cooking time can be varied and controlled from 10 minutes to 2 hours as required.

AMERICAN
DEFIBRATOR, Inc.
OFFERS

**ASPLUND DEFIBRATORS...** for separating fibers of softened cellulose materials for maximum yield and uniformity with minimum power consumption.

**DAVENPORT PRESSES...** for dewatering pulp and paper stock to high densities.

**DEFIBRATOR BARK PRESSES...** for reducing moisture content of wet bark to 55% or less, for use as fuel.

This complete line of equipment is mill-proven and low in operating and maintenance costs. Our continuous pulping equipment is available to suit your specific needs in units for producing 75 tons of pulp or more per day. Write us for detailed information, facts and figures.

AMERICAN DEFIBRATOR, INC. CHRYSLER BUILDING West Coast: A. H. Lundberg NEW YORK 17, N.Y. Orpheum Building, Seattle, Wash.

Pritchard
...a partner
for progress



For more than 25 years,

J. F. Pritchard & Co. has
been serving industries closely
related to the pulp and paper
industry with design,
engineering and construction
services. Pritchard also makes
available its services to the
pulp and paper industry.

Pritchard has the men, the methods and the experience to help you with your next expansion or modernization or new plant project. There's a lot of solid assurance to you of a successful installation when you first say, "Let's consult Pritchard!"

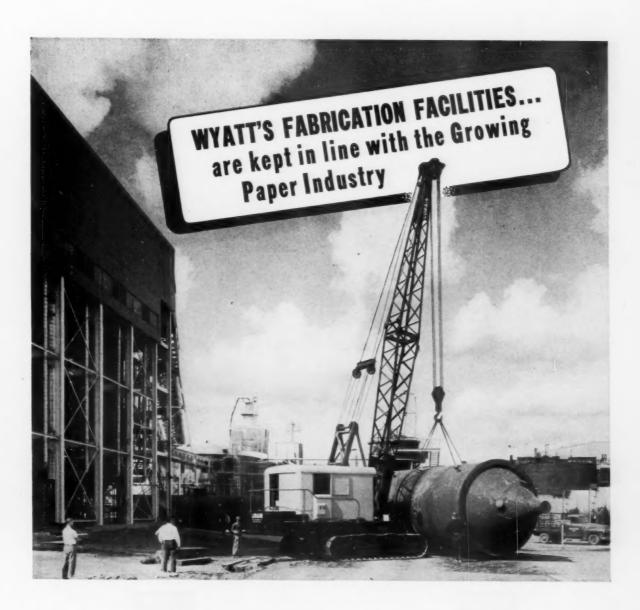
INDUSTRY'S
PARTNER FOR
PROGRESS
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SERVING THE GAS, POWER, PETROLEUM

CHEMICAL, PULP, AND PAPER INDUSTRIES

BOSTON CHICAGO BUFFALO HOUSTON NEW YORK PITTSBURGH J.F. Pritchard & Co.

4625 Roanoke Parkway, Kansas City 12, Mo.



Here One of Wyatt's Digesters is Headed for Its Place in the Expansion that will make the Calhoun, Tennessee Mills of Bowaters Southern Paper Corporation the Largest Newsprint Manufacturer in the South.

# WYATT

METAL & BOILER WORKS

DALLAS • HOUSTON



FABRICATORS AND ERECTORS SINCE 1913

# 1886-1956

We take the occasion of our 70th Anniversary to express our gratitude and appreciation to our friends and associates whose trust and confidence have made this anniversary possible—and to look ahead in the conviction that sound policy, experienced personnel and continuing management can achieve an even greater measure of success in this ever-expanding world economy.



Gottesman & Company, Inc. Central National Corporation
100 Park Avenue, New York 17, N. Y.

Gottesman & Company Aktiebolag, Stockholm, Sweden



Photo courtesy of Port of New York Authority

WOODPULP FROM FINLAND AND SWEDEN DESTINED FOR AMERICAN MILLS is unloaded at Newark, N.J., across the Hudson River from New York City, after traveling across Atlantic on S.S. "Tasco."

# WORLD PULP TRENDS

World Trade in Woodpulp		World Pulp Trade Map			
	page	76		page	84
A German's Viewpoint			World Market Pulp Directory		
	page	79		page	e 87
A Frenchman's Viewpoint		The Dissolving Pulp Outlook			
	page	79		page	119
A French-American's			Rayon & Acetate Plants Directory		
	page	81	p	page	126

# A WORLD REVIEW NUMBER SPECIAL

- North America controls global supply
- Europe now dominates demand
- · How far, how fast, do we go from here?

# What's Happening in Pulp World

 "Stop, Look and Listen" signposts are now being raised all along the new and widening highways of world woodpulp commerce.

Now at the midway point of another record-breaking year, experienced leaders among producers and consumers are saying: "It is time now to take a hard look at future expansion, perhaps to slow down the pace a bit."

The economic boom in Europe continues and needs will increase there. Most observers agree only North America can satisfy a good part of it. The longterm picture in America and elsewhere in the world is excellent

But an estimated additional 1,000,-000 tons of woodpulp for sale will come into production by 1958. That is a lot of pulp to be absorbed in the United States and abroad. Total market woodpulp consumption in the United States, by far the world's biggest consumer, reached 2,829,000 short tons, a new record, in 1955 (17% above 1954). Over half, 1,500,-000 short tons, was produced in U.S. mills and sold within the country. The rest was imported, over 1,000,-000 tons from Canada.

# EUROPE DOMINATES DEMAND

. . . North America has taken over control of the world market pulp supply. But, meanwhile, a booming European industry has taken over the dominant position on the demand side of the picture. The U.S.A. leads all nations individually in woodpulp consumption, but free Europe is now a slightly bigger total market. Instead of the U.S.A., it is Europe now which buys slightly more than half the market woodpulp of the world. On the other side of the picture, European exports of pulp to U.S. mills have declined 375,000 tons in just five years, and only added up to a low of 352,000 tons last year.

# U.S. EXPORTS SET RECORD . . . U.S.A. exports of woodpulp reached

an all-time high record of 632,914 short tons. A record of over 600,000

tons was forecast in PULP & PAPER'S 1955 WORLD REVIEW NUMBER. The new mark exceeded "freak" record of 481,000 tons in 1940, when submarines blockaded Scandinavia. This wartime situation woodpulp exports up kept U.S. around 300,000 to 400,000 tons for several years in the early 1940s, but it dropped to 39,000 in 1946 and for the next seven years ranged from around only 100,000 to 212,000 tons. American interest in Europe and overseas markets started to rise sharply in 1954, when 442,000 tons went out of the country. Then last year it zoomed up some 30%. This year shipments will even be higher.

LEADING MARKET PULP NATIONS . . . The great exporting nations in woodpulp commerce, in order:

1. SWEDEN. Still maintains its top position, with 2,537,987 short tons exported in 1955, even as its own consumption of pulp increased. This compares with 2,409,000 in 1954 and 2,385,000 in 1953. Both were substantially below pre-World War II records.

2. CANADA. Keeps creeping up on Sweden and—as PULP & PAPER predicted last year—it probably will pass Sweden in a few years. Canadian exports totalled 2,312,369 short tons in 1955, a new record and well up from 2,173,160 in 1954 and 1,944,000 in 1953.

3. FINLAND. Its exports climbed to 1,442,812 short tons, as compared with 1,300,000 in 1954 and 1,095,000 in 1953. The Finns are expanding in pulp and say they are out to hold U.S. and other markets.

# Highlights of This Annual Review

- $\checkmark$  Another 1,000,000 tons of market pulp in North America by 1958.
- √ Experienced heads say: Stop, look and listen! Before going farther.
  √ North America is net exporter—for second time in history.
- V Europe, however, finds itself in demand "saddle" for first time.
  V.S.A. sets all-time record for exports—and will be near there again in '56.
- Furope's shipments to America reach new low after 5-year steady decline.
- √ Sweden is No. 1 exporter still but Canada is creeping up on the aquavit homeland.
- Finland is third, but U.S.A. is challenging Norway for No. 4 spot.

  / Iron Curtain nations are net woodpulp importers by a small
- halance.

  Scandinavian total production high for postwar—but still below
- North America's total pulp output is 2½ times what it was in 1937.
- √ Companies cautioned to gauge individual roles in any further future expansion.
- $\sqrt{}$  For second half of 1956—woodpulp presents "a pretty steady picture."
- √ U.S.A. consumers "vitally interested" in more capacity on this
  continent.
- / "Big unknown" to American consumers—how much will go to overseas markets?
- / "Reason to hope" a tough competitive war between continents is unlikely.

for this spot by U.S.A., but held on. Its exports have been pretty steady, with not much chance of ever going much above 750,000 tons. Last year it shipped 758,110 short tons, compared with 674,000 in 1954 and 662,000 in 1953.

5. UNITED STATES, Even though climbing from 442,000 tons in 1954 to 626,000 in 1955, the United States could not improve its No. 5 position, though it probably will pass Norway in a year or two if the European markets for American pulp are fairly stabilized or slightly increased. This is probably a safe conjecture.

6. AUSTRIA. Its exports of woodpulp were 172,572 short tons in 1955 compared with 160,000 in 1954 and 132,000 in 1953. Much expansion here was financed by American aid.

7. WEST GERMANY. Pulp exports rose from 46,000 tons in 1954 to 49,840 tons in 1955. In 1953, this resurgent country shipped 31,000 tons.

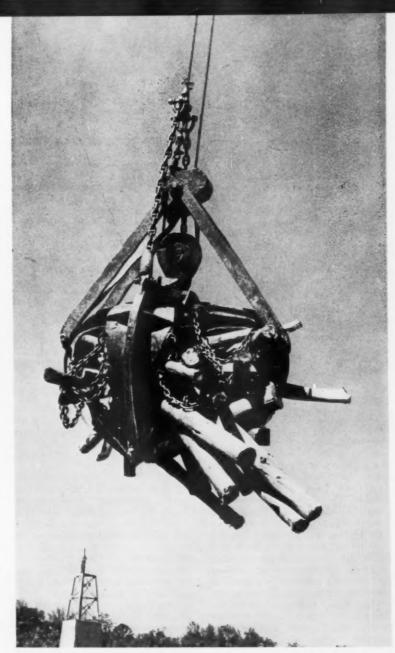
Belgium's shipments rose from 17,000 to 22,000 tons. The new industry in New Zealand, shipping to Australia, and Portugal also were around this mark again. Portugal has an unusual eucalyptus bleached sulfite mill which has been selling on world markets for years, and now a new kraft mill.

Yugoslavia in the past year doubled its exports—shipping 14,223 short tons in 1955, all bleached sulfite. Holland ships large quantities of straw pulp as well as strawboard to Britain, but the figures are not disclosed. Switzerland's one and only market mill, making sulfite woodpulp, exported 6,027 tons last year. Japan is no longer in the export field, being an importer. Even Taiwan ships some bagasse pulp to Korea and Japan.

Russia and its European satellites, especially Czechoslovakia, do some exporting, and Russia sold woodpulp last year in Britain, France and India. But, Iron Curtain countries are probably importers by a small balance.

IF RIP VAN WINKLE OF PULP WOKE UP? . . . Strange things have been happening in the pulp marketing world. If some old pulp "peddler" or buyer had fallen into a Rip Van Winkle slumber back in 1937, when Sweden, alone, for instance, shipped 1,130,000 tons of pulp to the United States, and woke up nearly two decades later, he would consider himself in completely topsy-turvy pulp world. In 1937, Sweden shipped a record 3,142,000 tons to the rest of the world.

Total production of Sweden, Norway and Finland, for its own use and export, in 1955, was the highest for any postwar year. Yet it was 5.3% be-



SOON TO BECOME WOODPULP. Load of pulpwood in mid-air is indicative of rising height of North American pulp production and consumption. Picture taken by PULP & l'APER editor in southern U.S.A. mill.

low their record year of 1937. North America's 1955 pulp production, however, was 2½ times as great as it was in 1937.

In 1954, North America became a net exporting continent for the first time in history, and it was again in 1955 and will be in 1956.

Ever since our Rip Van Winkle of the pulp world went to sleep, virtually all of the growth in pulp production has been in North America and in 1955, North America made more chemical woodpulp than Scandinavia for the first time in history. Over 95% of the world's market woodpulp originates in these two areas.

A DAY OF RECKONING? . . . But now the day seems to have come—as this is published in mid-1956—when the pulp producers of the world are wondering if it isn't time to take a reckoning. A lot of expansion is in the works—up to 1,000,000 tons more of market pulp alone by 1958 if all plans are carried out. Another estimate is that there will be a net increase of at least 750,000 tons on an annual basis by the end of 1957 or early 1958—based only upon projects now actually under construction.

Total added woodpulp capacity for Canada and U.S.A. by end of 1958 is estimated at 10,000,000 tons—for market and for integrated mills, combined.

PAPERBOARD ASSN. HEARS WARNING... At a meeting in May 1956 of the National Paperboard Association in Hollywood Beach, Fla., it was Keve Larson, pulp sales mgr., Weyerhaeuser Timber Co., who sounded a note of warning. He was official spokesman for the U.S. Pulp Producer Assn. Inc. Mr. Larson said:

"The threat of over-expansion is one of the most significant in our industry today.

Mr. Larson predicted that in 1957 there will be a substantial increase in the world capacity for market chemical pulp with the full impact of this capacity hitting the industry in 1958.

His estimate was that by 1958, there will be an increase of between a half-million and a million tons capacity for chemical pulp alone. The outlook today, said Mr. Larson, is good. U.S. production is running 12% ahead of last year, Canadian production is up 7% over 1955. New production records are generally certain for 1956 and evidences of excessive inventory are confined to a few areas. What then is the danger? Mainly, he pointed out, that the industry will push too far and too fast to meet demands.

EACH MILL MUST GAUGE ITS ROLE . . . To prevent a danger of over-expanding, each mill must accurately gauge its individual role in the expansion of the future, he said. To be either too near-sighted or too far-sighted could lead to serious trouble. The capacity for chemical woodpulp has increased about 95% since 1946-a total of 11.5 million tons. During the next two years, the rate of increase will be about 60% faster than it was in the past decade. Evidence that U.S. mills are rushing to cope with anticipated demands is shown in the fact that the amount of pulp scheduled to be in production by 1958 has increased 925,000 tons between Jan. 1, 1956 and mid-May, 1956!

Mr. Larson never said we are expanding too fast. He asked the question: "Are we expanding too fast?" THE 1956 PICTURE LOOKS GOOD

. . From the mid-year vantage point looking into the second half of 1956, pulp presents a "pretty steady picture," James Ritchie, executive director, U.S. Pulp Producers Association, told PULP & PAPER as he looked over first quarter market pulp figures.

For the first quarter, 1956, all grades of pulp produced in North America were up 11%. U.S. production was up 12%; Canada, 7%. Domestic market pulp production for paper grades was about the same as first quarter, 1955. Some 462,000 tons in 1956 vs. 460,000 tons in 1955, first quarter.

Market paper grades were up 13% in Canada. Dissolving grades rose 13% in the U.S. and about the same in

AS THE U.S.A. CONSUMER SEES IT . . . Speaking for some 150 companies and about 230 mills that annually consume over 1,500,000 tons of market pulp each year in the United States, Lane Taylor had this to say earlier this year:

'We find world demand accelerating. And we also find the rest of the world increasingly dependent on North American produced pulps. The result is that we, as consumers, are still vitally interested in further increases in market pulp capacity on this continent. In this connection, we are very happy to learn of the numerous expansion plans projected by U.S. and Canadian producers."

Mr. Taylor, president of W. C. Hamilton & Sons, turned over the presidency of the Assn. of Pulp Consumers (U.S.A.) this year to Samuel R. Sutphin, Executive V.P. of Beveridge Paper Co.
"There is no doubt that wood pulp

is a world commodity, and we have had very concrete proof over the past two years that pulp demand abroad directly affects our market in the U.S.," said Mr. Taylor. "Analysis of world supply of paper grade market chemical pulp shows that in 1946 North America produced about 37% (1,550,000 tons) of the total, whereas in 1955 North America produced almost 50% (3,200,000 tons) of the total-more than double the 1946 production. This is truly a remarkable accomplishment in just ten years time and should have left the consumer in an enviable and happy position.

"Unquestionably the North American consumer's position has been improved tremendously, but we must remember that Europe has taken over the dominant position in the demand picture. In 1946, North America consumed about 55% (2,300,000 tons) of total world market chemical pulp receipts, while in 1955 North American consumption declined on a percentage basis to 43% (2,700,000 tons) of total supply.'

ANOTHER SPOKESMAN FOR CONSUMERS . . . Another spokesman for the U.S.A. consumers, Reed R. Porter, executive secretary of their association, added these words:

"It would appear that our supply of market bleached pulps over the next few years should be reasonably adequate, even after allowing for the additional papermaking capacity now under construction in the U.S. The big unknown, of course, is how much of North American market pulp supplies will be drained off to the rest of the world. This is of more than academic interest to us.

"In this connection it is well for us to remember that many European consumers, particularly those in England, are not faced with the intense competition with integrated mills that exists in the United States. This competitive situation places them in a highly favorable position in the event of a shortage in pulp supplies. Within reasonable limits, tonnage might then become more important than price to them as all papermakers are market pulp consumers. In contrast, only 13% of total pulp consumed in the U.S. in 1955 was market pulp.

There is reason to hope, however, that a tough competitive war for pulp never will develop between the two continents. In the first place, the practice of contracting for a major portion of each consumers pulp needs is the accepted practice here and is gradually spreading to England and the European continent. It does have a definite stabilizing influence upon the general market."



LOCAL RAW MATERIALS are being increasingly utilized throughout the world to meet demands for pulp. Here bleached bagasse is fed to pulp mill of Refinadora Paulista, S.A., in Sao Paulo state, Brazil.

# A GERMAN, FRENCHMAN, AND FRENCH-AMERICAN LOOK AT PULP TRADE TRENDS

They see it in different ways—each viewpoint is interesting—who will be right?

# European Expert "Buries" OEEC Report

By DR. GUNTER KEISER

Consultant to Feldmuhle Pulp & Paper Co.

> Dusseldorf, Germany

A reinvestigation of the problem of Europe's future wood supply does not verify the optimistic analysis of its prospects for taking care of its own needs, as published in late 1954 by the Organization for European Economic Cooperation. In fact, the OEEC forecasts of European woodpulp needs up to 1960 are already shown to be incorrect.

We might overlook the OEEC forecasts and conclusions except for the fact that they have been considered so attentively and seriously by North American pulp producers and European consumers. As a result, an absolutely necessary future supply of North American pulp for Western Europe seems to be endangered.

FALLACIES IN THE REPORT . . . The OEEC estimates for Western Europe did not include some smaller countries, which took no part in the investigation, and, particularly, did not include Finland, which does not

belong to the OEEC.

The OEEC estimates the demand for newsprint will increase in Europe from 1950 to 1960 by 420,000 metric tons (462,000 short tons) to 2,000,000 metric tons. But a more or less hidden footnote says a possible further increase in demand of 500,000 metric tons must be taken into account. This additional demand cannot be drawn from European timber resources but must be covered by supplies from North America.

The increase in demand for paper and board other than newsprint will be only 35%, it says. The committee considers this as "particularly generous." It considers a probable increase in consumption of dissolving pulp of 39% as very uncertain since consumption of cellulose fibers has fluctuated considerably in recent years.

Up to 1960, the committee believes, production of paper and paperboard in Western Europe will meet higher consumption without difficulty and it stresses great possibilities in using a semi-chemical process, especially for board.

HOW IT ANALYZED THE PULP OUTLOOK . . . The OEEC is no less optimistic as regards supplying raw materials for the expected increase in paper production. It assumes an unchanged amount of waste paper will be available. It foresees more extensive use of straw, esparto and nonwood fibers, the supply of which is expected to increase 68%. So, it concludes the demand for woodpulp between 1950 and 1960 will increase only 30% or 1,900,000 metric tons (2,090,000 short tons). Of this, it says 360,000 metric tons could be gained by more intensive use of wood resources, and it says woodpulp produc-

Continued on page 82

# A Controversial Subject

Ever since one of the United Nations' offshoots, the Organization for European Economic Cooperation, published in late 1954 a volume entitled "The Pulp and Paper Industry in Europe—Development and Prospects," this opus has been a subject of intense controversy on both sides of the Atlantic.

Because it involves officialdom in its preparation, paid for by nations that underwrite such United Nations activities, it has had an authoritative aura develop around it. It has been quoted many times—to prove one point or another—by Americans, Canadians and Europeans.

Here—at last—it appears that a European expert has finally taken it apart and shown what "makes it tick."

# Transatlantic Pulp Trade is in Balance

By R. ESSELIN

Editor-in-Chief, Papier, Carton et Cellulose

Paris

It was in a recent period of general readjustment that the United States began to exploit an appreciable new production capacity in woodpulp. It is easy to conceive that on the one hand one could find on the North American market a certain amount of woodpulp available which replaced European pulps, and that on the other hand European consumers who could more easily secure dollars were happy to round out the purchases they made from their traditional suppliers by certain quantities coming from North America and offered at interesting prices at a moment when their order books for paper and board were filling up from day to day.

up from day to day.

(Eds. note—M. Esselin refers here to statistical data for early 1954, when American pulp exports to Europe began to rise sharply to present high records. He uses statistics which show a 1% dropoff in U. S. paper and board production in the first 9 months of 1954, at the same time Europe's production was increasing 18%. U. S. pulp exports rose from 162,000 tons in 1953 to 442,000 tons in 1954 and a record 633,000 tons in 1955.)

It is therefore very logical that in such circumstances the current between these two communicating chambers, North American pulp market and European pulp market, did take a West-East direction, but it would seem in our mind premature to consider this orientation as definitive and to deduce from it that one can count with certainty for the future on supplies of North American pulp, and this whatever be the situation of the market in the United States.

I would be denying the truth to deny the dynamic energy of the woodpulp industry in North America and ignore the considerable reserves of pulpwood which the North American paper industry has. But we read in American technical reviews that the expansion cycle of the capacity of woodpulp production destined to make the United States industry independent of European supplies is terminated and that in this respect one must not expect any great changes in the years to come. This does not mean to say that if the sales possibilities on the various foreign markets seem favorable, North American industry will not envisage the development of a market pulp industry geared to export; the raw materials necessary for new expansion of production are surely available.

However, this problem has two aspects: a short term, and a long term one, which both merit closer study.

SHORT TERM OUTLOOK... For the immediate future, we must not forget that the decrease of 1% in American paper and board production in early 1954, for example, might be overshadowed by an increase of 3% (which does not seem out of reason if we believe the news which we have received) in order for 1,000,000 additional tons of paper and board to be produced in the United States. In virgin pulp this quantity corresponds to 650,000 or 700,000 tons approximately.

If it is true that the board industry did suffer appreciably, and that in this industry the proportion of integrated mills is particularly high (which signifies an appreciable proportion of these additional 700,000 tons of pulp would not be market pulp), one can nevertheless deduce from this that the available exportable amount of woodpulp would be reduced definitely if the production of paper and board developed in the United States.

"RISKY" LONG TERM . . . On a long term basis, and before the European industry resigns itself not to seek further to develop to the maximum its national resources in fibrous materials, it is necessary to recall this fact:

Just as the North American industry refused to be tributary to the European market pulp industry, it would be extremely risky to count on North American supplies to satisfy the future development of woodpulp needs in Europe. Because even if the question of availability of supply in North America is excluded, the problem of availability of dollars will always exist for the European countries. Although Europe has advanced towards convertibility and efforts are being made everywhere to obtain non-discrimination for dollar purchases, certain recent signs should cause anxiety to future purchases of goods payable in dollars. Thanks to efforts on the export market Europe has been able to fill in a large part of its dollar deficit, but this success alarmed all American industries which are affected by European competition and which ask from their government a greater customs protection.

That these requests are crowned with success can be seen in certain steps that the American authorities have been forced to take although they are in flagrant opposition with the official policy as set forth by the President. If such developments can cause careful thinking on the part of exporters who are directly affected or who fear to be affected soon, they should also cause thought on the part of all potential importers of products which until now are not among those

### Another Point of View

Editor-in-Chief Esselin of the French industry magazine, "Papier, Carton et Cellulose," takes a different point of view on the future of North American woodpulps in the European market than that expressed by Dr. Keiser.

In his article he comes to this conclusion-that it is necessary for the North American suppliers of pulp to the European market to provide at all times stability of supply and price.

He figures trade both ways in pulp-Europe to America, America to Europewill fluctuate.

But he sees the growing North American interest in Europe as a good sign, He calls it "proof that the two markets are approaching a point of ideal balance where supplies go to the market that needs them." It becomes what he calls "a regulating influence."

products which are traditionally purchased in the dollar zone, because it is evident that, if there is again a serious lack of dollars, such products will have to give way to the products traditionally purchased in the dollar zone.

The reduction in the demand for pulp in the United States in 1954 came just at the right moment because on the one hand European exports to the United States decreased by approximately 35/40%, and the quantities thus made available were absorbed by the European market, on the other hand the European buyers were able to increase their purchases from North America.

It is fair to underline that the reduction of exports to the United States could not be ascribed to an imprudent price policy on the part of European exporters. The reduction was not caused either by the fact that European exporters were disinterested in the North American market and gave their preference to the European market because of the more interesting prices they could obtain on that market. Woodpulp producers insisted on the fact that the price increase was caused by an increase in pulpwood prices, and woodpulp consumers recognized that this was so by calmly accepting these price increases.

"DANGER" IN WOOD PRICES IN EUROPE . . . Nevertheless, the increases in the prices of pulpwood may cause great danger for the future of the European woodpulp and paper industry, because if the difference between American and European pulpwood continues to increase it is possible that it will seriously compromise the competitive position of the

If we look for the causes of the increase of fibrous materials, it seems nevertheless useful to underline the fact: Here and there people say that

European industry on world markets.

the responsibility for this increase is that of the paper industry which apparently has over-equipped itself in the post-war years and now is forced to unfairly overbid prices in competition with other wood consumers, so as to ensure the supply for its new installations. It does not seem fair to us to talk of over-equipment in the case of an industry where the ratio of capacity to installed production was, for the whole of the OEEC countries, even in the year 1952, called a year of crisis, of an average of 83%, and which before and after this period has been of 90% or more.

We can talk even less of overequipment if we recall the average per capita consumption of paper and board of the various European countries and the speed with which this consumption increased, in North America for example, where since a long time the primordial importance of paper and board for the general economy of the country has been understood.

A continuing increase in the price of paper and board, whether it is the result of an increase in the prices of raw materials or the result of the producers abusively profiting of the market situation, contains in any case a double risk: On the one hand it deprives the paper industry on the various national markets of outlets for papers and boards and articles made from these, and on the other hand it compromises the possibility of maintaining exports of pulps and papers which are vital for certain countries of Western Europe.

AN IDEAL BALANCE . . . We be lieve that the evolution of trade in 1954 (continued in 1955), as interesting and happy as it may have been in its effect, must not be interpreted as a sign of a new orientation of trade between Europe and North America but rather as proof that the two markets are approaching a point of ideal balance where supplies are directed towards the market which needs them, thus exercising a regulating influence.

So that possible changes in the present situation-for example, an increase of 1% in the United States production of paper and board can result in a variation of the consumption of pulp of 162,000/170,000 tons, i.e. double the supplementary amounts imported from North America by the OEEC countries in 1954-may not have grave or even disastrous consequences, it seems important that the ties between the two markets be even closer, and that efforts be made on the two sides so that a healthy equilibrium exists between the two. If a material equilibrium is not possible because of the inequality of the raw materials available, an equilibrium in the development of the available resources is indispensable so that the relationship between the partners be based on a mutual scheme.

The expansion of the pulp industry must also be energetically promoted in Europe, and especially in the socalled importing countries. The continuous development of modern techniques allowing the use of new fibrous materials or the increased yield of the classical fibrous materials, is of first-rate importance to these countries. It would allow them to ameliorate the supply position of their paper industry and would give to numerous non-integrated mills whose production capacity is indispensable for the satisfaction of the paper and board demand the means of facing competition in a better fashion.



FRANK M. WARREN, of Paris and New York. He speaks from 17 years of market pulp business experience on the Continent

# How Europe Feels About Pulp

By FRANK M. WARRIN

North American Woodpulp Representative for Continental Europe

• While some progress has been made to assure European consumers that they can enjoy longterm confidence in North American suppliers, and must do so in order to meet future European pulp requirements, I think much more needs to be done to dispel uncertainties abroad.

I have found an anxiety on the part of many European consumers who feel that North American suppliers consider Europe as a marginal market to which recourse must be had from time to time, in order to sell pulp which cannot be sold to North American consumers.

On the other hand, North American producers already have set aside limited amounts of future pulp for Europe and this can be increased, if assurances can be strengthened. Already, dozens of thousands of tons have been sold under 5-year contracts.

Anxiety of some European consumers is probably justified if one thinks of certain suppliers who may use the European market merely as an outlet for a temporary pulp surplus which they are unable to place elsewhere. It is not justified, however, in connection with other suppliers who firmly believe in the future of the European paper industry and in its development.

SOME NORTH AMERICANS HAVE FAITH . . . It is probable that some North American pulp mills did use the European market as a "safety valve" to sell the small temporary surplus of pulp they had. However, it is incontestable that other companies have turned to the European market because they consider, and justly so, that that market will expand more and more, and that they will be able to find there the stability and the

economic conditions they must have in order to plan on setting aside a regular and fair percentage of their production for European customers.

While certain North American companies are deeply interested in the European woodpulp market, it is indispensable that they find a field of mutual understanding with European customers which would produce a maximum of stability in sales and prices.

EUROPE MUST LOOK OVERSEAS

. . . . It would appear from reliable information that the European paper industry cannot, even under the most optimistic previsions, be self-sufficient for pulp, and that consequently it will have to turn more and more to non-European suppliers to cover its increasing requirements. Further, the tendency on the part of the Scandinavian countries to set up new paper machines seems to underline the development of Scandinavian sales of paper on the world market, to the detriment of Scandinavian sales of pulp

This tendency highlights a fact which is very important for the non-integrated European paper mills. They are obliged to find assurances of regular and stable pulp supplies at reasonable prices to enable them to successfully compete against imports of foreign paper.

In the case of the North American pulp suppliers the choice should rest on those who advocate a policy of regular and continuing sales to Europe, whose financial means allow for expansion of their production in order to follow the evolution of the European market, and whose geographic location is such as to reduce to a minimum the problems of transportation.

RESTRICTIONS LIFTED ON NORTH AMERICAN PULP . . . . The year 1955 will go down as one

# About the Author: Warren Born in Paris

Frank M. Warren, the author of this article, has spent his entire adult life in the European market pulp business. Son of an American father, and a French mother, Mr. Warren now maintains offices in both Paris and New York—the latter at 405 Lexington Ave., New York 17, N. Y. His father moved to Paris many years ago from Watertown, N. Y., to sell American-made pulp and paper machinery as well as woodpulp.

Young Mr. Warren is now Continental European woodpulp representative for the Pulp Division, Weyerhaeuser Timber Co., and for the so-called "Northeastern Group" of Canadian mills—Anglo-Canadian Pulp & Paper Mills, Ltd., Anglo-Newfoundland Development Co., Ltd., Gaspesia Sulphite Co., Ltd., Great Lakes Paper Co., Ltd., and Powell River Paper Co., Ltd. With respect to long-term contracts for woodpulp, Mr. Warren does business under his own name.

Mr. Warren's father, Francis W. Warren, first set up business in Paris in 1907. Frank was born there. He has been a regular commuter between the two countries for years. He joined his father's firm in Paris in 1939, after graduating from Brown University, Providence, R. I., U. S. A.

Mexence Chavassieu is his representative in Paris, with offices at 2 Rue Marengot.

of the most prosperous years for the world paper industry. It will also most certainly be a year during which North America reaffirmed its position regarding pulp exports to Europe. Indeed, with the exception of two or three countries, Western Europe to-day can import North American woodpulp almost without restrictions.

It is always possible that some European countries might continue not to consider the paper industry as an essential one and, therefore, not allocate dollars to it. However, this attitude is subject to continual evolution, and as this evolution progresses it becomes easier for the papermakers of those countries to plan on purchases of North American woodpulp.

WHERE WILL EUROPE GET PULP? . . . I should not fail to mention at this point the reports (studies) published by certain official and semiofficial organizations, which reports attempt to prove that within a few years the European paper industry will become independent, in matters of pulp supply, from North American suppliers. This thesis seems to be without foundation when one analyzes quite objectively the European requirements during that same number of years, and European supplies to cover them.

Further, it should not be forgotten that in order to maintain a healthy trade balance Scandinavia must export a portion of its pulp outside of Europe, in the form of either pulp, paper, or board. Therefore, one cannot count on a re-orientation of those exports for the benefit of European countries. (It is likely that a substantial part of the planned expansion in Scandinavian pulp production will merely replace pulp capacity which will be withdrawn from the market as Scandinavian mills proceed with integration projects.) North America remains the most logical source of supply for a large part of the additional tonnages of woodpulp which Europe will need in the future.

WHAT INVESTORS NEED TO . . Either-as certain reports will have it-Europe will have almost no need of North American woodpulp, and, consequently, no special provision will have to be made for European needs in the expansion plans for North American pulp production; or-as everything tends to show-Europe will turn more and more to North America for its increasing needs for woodpulp, and, consequently, must induce North American woodpulp producers to increase their production of woodpulp slated for Europe by adopting a rational purchasing policy and by offering those producers a stable market for the future.

It is quite probable that if European purchasers of pulp do not offer at least the same stability as do North American buyers, North American investors will not easily permit their woodpulp manufacturing companies to assign precious capital to a costly expansion of production facilities to

serve an uncertain market; rather, they would prefer to see such capital used to serve a more stable clientele exclusively. This would have the short-term effect of reducing very seriously North American tonnages available to Europe, and the unpleasant consequences which arise from demand exceeding supply.

WOULD SET ASIDE PULP FOR EUROPE . . . According to many European papermakers, stability of the European woodpulp market can be created. On the other hand, certain North American companies are planning on setting aside a specific percentage of their pulp production for Europe.

This percentage, although quite small now, will be increased if the European market proves to be a stable market, as they hope it will, providing the same advantages as these companies find on the North American market.

LONG-TERM CONTRACTS BEING MADE . . . Some North American companies advocate a sales policy for Europe exclusively by long-term contracts (five years minimum), with specified tonnages and stable prices. They require from their customers an actual pledge, and refuse so-called "reservation" contracts which, in their opinion, are elements of speculation.

Their object is twofold: To create a circle of customers in Europe having the same advantages and responsibilities as their North American customers; and to create the kind of market that will lead the people in North America, or even abroad, to channel their investment capital into an industry which will then be able to face Europe's increasing needs reasonably well.

Perhaps there are other solutions to this same problem. I have merely mentioned one which has proved itself. Without such solutions, the problem remains. For North America, which will consume approximately 4,500,000 tons more of market woodpulp in 1965 than in 1954, would have to include Europe, as of now, in plans for the expansion of its woodpulp industry. While this depends in part on North America, it also depends on the position taken by the European paper industry on the question of whether or not it will require North American woodpulp in the future, and if so, whether it is prepared to take the necessary steps right now to insure regular supplies for itself under the best possible conditions.

Continued from page 79

tion in Sweden, Norway and Finland could be increased 1,400,000 metric tons (1,540,000 short tons). Thus only an unimportant, theoretical deficit would remain. The committee, therefore, comes to the conclusion that no serious shortage of woodpulp is to be expected in Europe up to 1960!

But this is not verified by a careful reappraisal. For a long time, considerable quantities of European pulp and paper and board have been exported overseas. The OEEC balance would be logical only if the committee assumes that these trade relations do not alter, and that is rather a hazardous conception. The magnitude of these overseas exports must be sufficiently accounted for.

The survey starts by uniformly deducting 24.7% from total consumption of paper in each OEEC country, as the disposable quantities of waste paper. It deducts further amounts for straw, esparto, etc. Any papermaker knows only 80% to 85% of waste paper really enters the final product, and, on the other hand, fillers, rags, etc. have to be added. To what extent these compensate each other can hardly be estimated for Western Europe as a whole.

Finally, OEEC has taken into account the full weight of disposable waste paper, straw, esparto, etc., and has not considered that some parts of these materials are used for papers not consumed in Europe but exported overseas.

ALREADY OUT OF DATE . . . Aside from these shortcomings, we must raise the question of whether the basis for the whole study can be considered probable and sufficient.

In spite of the fact that the OEEC considered its assumptions "particularly generous," the increase of Western European demand for the 1950-1960 period has already been largely realized! Even two years ago this was true.

By 1954, consumption of newsprint increased over 30% and other paper and board by 28%. Even if the growth of Western European demand for the remaining years until 1960 is not as hectic as it has been up to date, there is no doubt that the OEEC estimates of a 58% increase for newsprint and 35% for other paper and board is completely fictitious and anything but "particularly generous." The increases predicted by OEEC will be far exceeded. The increase probably will be double for "other paper and board." The total increase will be close to the 58% the OEEC was barely willing to concede for newsprint.



WHAT WILL EUROPE DO ABOUT IT? CAN IT TRUST THE OEEC FORECAST THAT BY 1960 ITS OWN PULP PRODUCTION WILL MATCH ITS NEEDS?

Using OEEC's own methods of computation, the consumption of woodpulp in Western Europe showed a 26.5% increase from 1950 to 1954. while the OEEC only assumed a 30% increase for the entire decade to 1960! This additional consumption could not even be covered by Europe's own supplies in the first four years. Imports from North America have continued to increase consider-

WHO IS TO BLAME? . . . How was it possible for the OEEC to come to such an incorrect estimate? It already had in its possession the main figures for the first half of 1954, which showed growing dependence on North American woodpulp.

The explanation rests first in the structure of OEEC itself. Its staff is not an independent institution. It cannot shape its own opinion by collecting facts independently but has to accept the preselected data and comments given by member countries and more or less confine itself to them. The mistakes are not caused by the OEEC but by individual countries. The statements of governments and private associations in each country are not always objective but sometimes are influenced by tactical pur-

AN ARGUMENT WAS ON . . . Also, at the time of this report the Pulp and Paper Committee of the Economic Commission for Europe was very strongly objecting to a forecast published in 1953 by the ECE Wood Committee which forecast an increase of European paper consumption of 94% between 1950 and 1960, or of at least 78% if prices increase more rapidly than the general price level. This meant a serious shortage of wood for paper in Europe.

The member countries of OEEC and association experts evidently chose the other extreme, because they wanted to show a balanced supply, and so underestimated the upward trend of paper consumption.

This case seems to prove long term estimates of this kind should be executed by an objective, independent, scientifically qualified institution. The Americans, with much larger experience in this field, have better conditions for long term forecasting (as-OEEC says), and have proceeded in this manner with the well known Paley Report on future world demand for raw materials and the Stanford Research Institute's "America's Demand for Wood 1929-1975.

"FICTITIOUS CONCLUSION". The most important, however fictitious, conclusion of the OEEC was the statement that available European raw material resources will be sufficient for the presumable increase in paper demand up to 1960. That would mean the need for North American pulp and paper would be no greater than it was in 1950 (only 143,000 short tons of pulp and 66,000 short tons of paper). While it says these North American exports will be greater and will be welcomed, except for newsprint, they will not be necessary to maintain Western European supply. This conclusion can no longer be maintained.

The production of wood and pulp

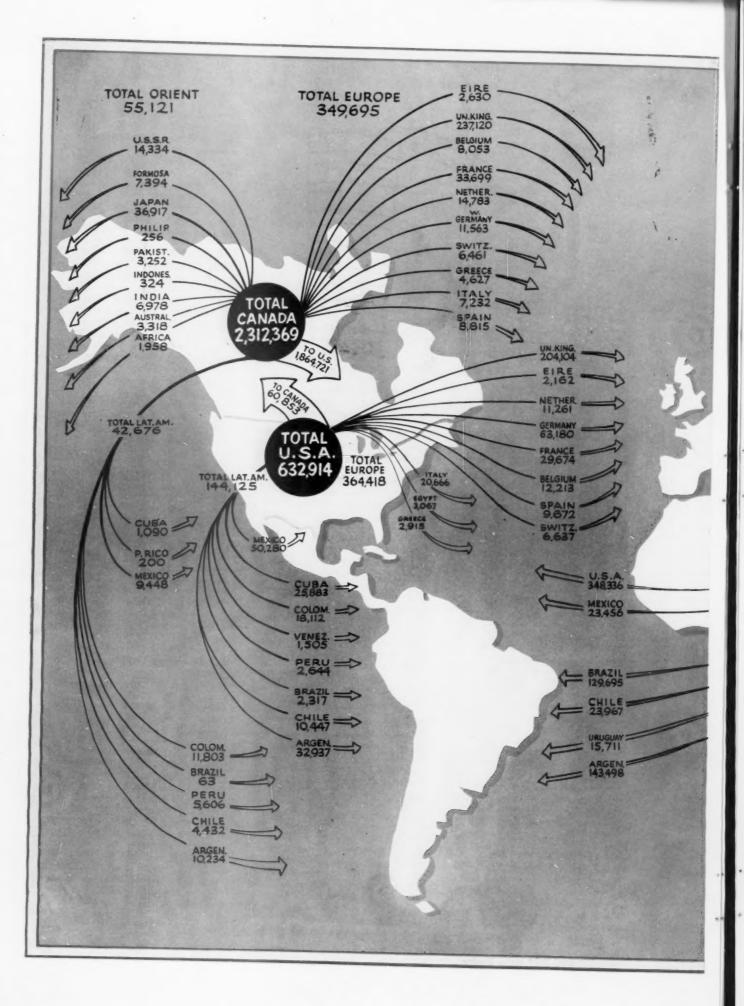
in Europe is limited and cannot be extended without restrictions. From 1950 through the first half of 1954, Western European paper consumption increased 30%, but pulp production could only be increased 21%. Up to this point, intensified use of waste paper, straw, etc., and a decrease in European exports prevented considerable disturbances. But in 1955, Europe's paper consumption and paper capacities increased impressively.

WHAT ABOUT EUROPEAN PULP PRODUCERS? . . . The disposable surpluses of exporting countries in Europe-Scandinavia and Austriaare being restricted by the expansion of their own paper industries. There was no real deficit of woodpulp in Europe in 1951, when imports from America were high, and were used to build up stocks. But today the situation is quite different. Imports from North America have become an absolute necessity.

There are two aspects of Scandinavian exports overseas (to other countries than European) which must not be overlooked. These exports are needed to keep Scandinavian trade balances regionally leveled out. Secondly, the demand in many countries, notably South America, is very urgent and profitable and the Scandinarians probably will not withdraw from these markets in the foreseeable fu-

THE DANGER . . . L. K. Larson, sales manager, Pulp Div., Weyerhaeuser Timber Co., referred to the OEEC survey in a meeting of the National Paperboard Association, where he stated that if its conclusion as to European sufficiency is true-'and I seriously doubt it-individual North American producers may want to take another very careful look at their plans for expansion in the next decade. For their own sake, I feel certain that consumers in Europe will want to make certain this vital conclusion is soundly based."

Everything points to the fact that in the next five years, if the uplift in Western European economies is not seriously hampered, the European paper industry will be constantly dependent upon shipments from North America. It would be extremely precarious if American pulp producers would permit the OEEC estimates to induce them to revise their latest policy in regard to world markets. Particularly since the facts have already long since shown the OEEC study to be so very incorrect. It can only be hoped the OEEC will soon reexamine its survey and adjust it to the facts that cannot now be over-



GT. BRIT. 1,897,303 TOTAL SCANDIN. 4,698,544 DEN. 95.584
BELG-LUX 143,881
FRANCE 552,970
GER.E.W. 388,898
NETHER. 394,120
DOLAND 51,422
EZECH. 8488
SWITZER. 47,103
HUNGARY 114,308
ITALY 214,435
GREECE 22,918
PORTUGAL 23,975
SPAIN 98,445 U.S.S.R. 17,663 = GREECE PORTUGAL SPAIN ISRAEL 9,892 3,816 = JAPAN 11,392 INDIA & PAK. 15,993 TOTAL ASIA AFRICA-PACIFIC 63,378 FORMOSA 650 PHILLIP 845 ISRAEL 589 PAKIST. 845 INDIA 2.598 FR.MOR. 300 S.AFICA AUSTRA 8,543 AUSTRALIA 62,468 WORLD PULP TRADE MARKET PULP FLOW (In Tons of 2,000 lbs.) PULP & PAPER



To supply you with an on-the-continent source of the whitest, brightest bleached pulp you've ever seen, we're rushing completion of our new mill at Hinton, Alberta. Owned jointly by the St. Regis Paper Company and North Canadian Oils, Ltd., the mill will produce 430 tons a day or 150,000 tons per year.

This Alberta "Hi-BRITE" pulp, made from spruce and lodge pole pine, will be uni-

formly excellent, thanks to quality control every step of the way. A continuous digesting system will turn out pulp that adapts equally well to such diverse uses from facial tissues to bond and ledger papers.

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# Worldwide Directory by Grades

Information on addresses, trade names, brokers, etc., may be found in the listings by companies which immediately follows this section.

# Dissolving and Special

United States

Brown Company Buckeye Cellulose Corp. International Paper Co. Ketchikan Pulp Co. Rayonier, Inc. Scott Paper Co., West Coast Division

Weyerhaeuser Timber Co.

Weyerhaeuser Timber Co.
Canada
Alaska Pine & Cellulose, Ltd.
Canadian International Paper Co.
Columbia Cellulose Co. Ltd.
Restigouche Co. Ltd.

Kellner-Partington Paper Pulp Co. Ltd.

Finland

Enqvist, J. W. O/Y Kaukas Fabrik, A/B Rauma Repola O/Y Rosenlew, W. and Co., A/B

Borregaard, Aktieselskapet

Sweden
Bentsfors Sulfitaktiebolag
Billeruds Aktiebolag
Korsnas Aktiebolag Mo & Domsjo, Aktiebolag Stroms Bruks Aktiebolag Svartviks Aktiebolag Uddeholms Aktiebolag

# **Paper Grades**

# SULFITE, BLEACHED

United States

Brown Company Crown Zellerbach Corp. Eastern Corporation Eastern Corporation
Ketchikan Pulp Co.
Penobscot Chemical Fibre Co.
Puget Sound Pulp & Timber Co.
St. Regis Paper Co.
Scott Paper Co.,
Hollingsworth & Whitney Div.
West Coast Div.
Weverhaeuser Timber Co.

anada
Abitibi Power & Paper Co., Ltd.
Alaska Pine & Cellulose, Ltd.
Alliance Paper Mills, Ltd.
Canadian International Paper Co.
Columbia Cellulose Co. Ltd.
Fraser Companies, Ltd.
Gaspesia Sulphite Co., Ltd.
Howard Smith Paper Mills Ltd.
Irving Pulp & Paper Ltd.
North Western Pulp & Power, Ltd.
Restigouche Co. Ltd.
ustria Canada

Austria
Kellner-Partington Paper Pulp Co.

Finland

inland
Enqvist, J. W. O/Y
Haarlan Selluloosayhtio
Kaukas Fabrik, A/B
Kymmene, A/B
Rauma-Repola O/Y
Rosenlew, W. and Co., A/B
Serlachius, G. A., O/Y
Yhtyneet Paperitehtaat O/Y

Germany Zellstofffabrik Waldhof

Norway Borregaard, Aktieselskapet Greaker Cellulosefabrik A/S Krogstad Cellulosefabrik

Artieselskabet
Mjondalen Cellulosefabrik
Aktieselskabet
Tofte Cellulosefabrik Aktieselskabet
Toten Cellulosefabrik Aktieselskabet
Vestfos Cellulosefabrik Aktieselskabet

Sweden
Bengtsfors Sulfitaktiebolag Bengtsfors Sulfitaktiebolag
Billeruds Aktiebolag
Edsvalla Bruk, Aktiebolaget
Essviks Aktiebolag
Forshaga Sulfit Aktiebolag
Hissmofors Aktiebolag
Hissmofors Aktiebolag
Hissmofors Aktiebolag
Mo & Domsjo, Aktiebolag
Mo & Domsjo, Aktiebolag
Munkedals Aktiebolag
Skonviks Aktiebolag
Stroms Bruks Aktiebolag
Svartviks Aktiebolag
Aktiebolag
Aktiebolag
Tegefors Verk
Uddeholms Aktiebolag
Wikmanshytte Bruks Aktiebolag

# SULFITE, UNBLEACHED

**United States** 

Crown Zellerbach Corp. Hollingsworth & Whitney Div., Scott Paper Co. Scott Paper Co., Hollingsworth & Whitney Div. Spaulding Pulp and Paper Co.

Abitibi Power & Paper Co., Ltd. Anglo-Canadian Pulp & Paper Mills, Bathurst Power & Paper Co., Ltd.
Bowater's Newfoundland Pulp &
Paper Mills, Ltd.
Canadian International Paper Co. Canadian International Paper Consolidated Paper Corp., Ltd. Donnacona Paper Co., Ltd. Fraser Companies, Ltd. Gaspesia Sulphite Co., Ltd. Great Lakes Paper Co., Ltd. James Maclaren Co., Ltd. Mersey Paper Co., Ltd. Ontario Paper Co., Ltd. Powell River Co., Ltd. Quebec North Shore Paper Co. St. Lawrence Corp., Ltd. St. Raymond Paper, Ltd. inland

Finland Aanekoski O/Y Aallstrom, A. O/Y
Eklof, Aug., A/B
Enso-Gutzeit O/Y
Jakobstads Cellulosa A/B
Kajaani O/Y
Kemi, O/Y Kymmene, A/B Nokia O/Y Notia O/1 Serlachius, G. A., O/Y Toppila, O/Y Veitsiluoto O/Y Yhtyneet Paperitehtaat O/Y Norway Katfos Fabriker, Aktieselskabet Sweden

Bergvik och Ala Aktiebolag Gota Sulfitaktiebolaget Hellefors Bruks Aktiebolag Hylte Bruks Aktiebolag Kramfors Aktiebolag Mackmyra Sulfit Aktiebolag Marma Langrors Aktiebolag Oskarstrom Sulphite Mills A/B Stjernfors-Stalldalen Aktiebolaget Stjernfors-standaen Aktebolaget Stora Kopparbergs Bergslags A/B Storviks Sulfit Aktiebolag Sunds Aktiebolag Svano Aktiebolag Utansjo Cellulosa A.B. Wifstavarfs Aktiebolag Yugoslavia Fabrik Celuloza Prijedor

### SULFATE, BLEACHED

Brunswick Pulp & Paper Co.
Buckeye Cellulose Corp.
Champion Paper & Fibre Co.
Coosa River Newsprint Co.
Crown Zellerbach Corp.
East Texas Pulp and Paper Co.
Halifax Paper Co., Inc.
International Paper Co.
North Carolina Pulp Co.
Oxford Paper Co.
Potlatch Forests, Inc.
Riegel Carolina Corp., Carolina Div.
St. Marys Kraft Corp.
St. Regis Paper Co.
Scott Paper Co.
Hollingsworth &
Whitney Div.
West Virginia Pulp and Paper Co.
Anada **United States** 

Canada Canadian International Paper Co. Canadian International Paper Co.
Dryden Paper Co., Ltd.
Fraser Companies, Ltd.
The KVP Co., Ltd.
MacMillan & Bloedel, Ltd.
Marathon Paper Mills of Canada, Ltd.
North Western Pulp & Power, Ltd.
inland Enso-Gutzeit O/Y

Norway Hurum Fabriker, Aktieselskabet Sweden

reden
Forss Aktiebolag
Iggesunds Bruk, Aktiebolaget
Kopparfors Aktiebolag
Korsnas Aktiebolag
Mo & Domsjo, Aktiebolag
Ostrands Aktiebolag
Stora Kopparbergs Bergslags A/B
Uddeholms Aktiebolag

# SULFATE, SEMI-BLEACHED

Bowaters Southern Paper Corp. Champion Paper & Fibre Co. Halifax Paper Co., Inc. Scott Paper Co., Hollingsworth & Whitney Div.

Canada

Canadian Forest Products Ltd. Oulu O/Y

Sunila O/Y Sweden Korsnas Aktiebolag

# SULFATE, UNBLEACHED

**United States** 

Chited States
Chesapeake Corp. of Virginia
Container Corp. of America
Crown Zellerbach Corp.
Halifax Paper Co., Inc.
International Paper Co.
National Container Corp.
North Carolina Pulp Co.
Oxford Paper Co.
St. Marys Kraft Corp.
St. Regis Paper Co.
Southland Paper Mills, Inc.
West Virginia Pulp and Paper Co.
anada
Canada Research

Canada anada
Canada Paper Co.
Canadian Forest Products Ltd.
Canadian International Paper Co.
Consolidated Paper Corp., Ltd.
Dryden Paper Co., Ltd.
Fraser Companies, Ltd.
MacMillan & Boedel, Ltd.
North Western Pulp & Power, Ltd.
St. Lawrence Corp., Ltd.
inland

Finland Enso-Gutzeit O/Y
Joutseno-Pulp O/Y
Kemi, O/Y
Lohja-Kotka, O/Y Oulu O/Y Sunila O/Y

Norway Hurum Fabriker, Aktieselskabet

Sweden
Bergvik och Ala Aktiebolag
Dynas Aktiebolag
Eds Cellulosafabriks Aktiebolag Forss Aktiebolag Holmsunds Aktiebolag Iggesunds Bruk, Aktiebolaget

Kopparfors Aktiebolag Kramfors Aktiebolag Aramiors Aktebolag
Marma Langrors A/B
Munksjo, Aktiebolag
Munksunds Aktiebolag
Ostrands Aktiebolag
Ostrands Aktiebolag
Sandvikens Cellulosa A. B.
Wifstavarfs Aktiebolag

# SODA, BLEACHED

United States
The Mead Corp.
New York and Penn
Penobscot Chemical Fibre Co. Canada Howard Smith Paper Mills Ltd.

### SEMI-CHEMICAL

Finland Veitsiluoto O/Y

### GROUNDWOOD

United States
American Wood Board Co.
Coconino Pulp & Paper Co., Inc.
Little Rapids Div., Charmin Paper Mills
Oswego Falls Corp.
Scott Paper Co., Hollingsworth &
Whitney Div.
Tomahawk Pulp Co.

Canda anda
Bathurst Power & Paper Co., Ltd.
John Breakey, Ltd.
Donohue Brothers Ltd.
Fraser Companies, Ltd.
Gair Co., Canada Ltd.
Gulf Pulp & Paper Co.
Halifax Power & Pulp Co., Ltd.
Howard Smith Paper Mills Ltd.
Lafayette Pulp & Paper Co.

Lake Megantic Pulp Co.
Lotbiniero Pulp & Paper Co., Ltd.
James Maclaren Co., Ltd.
Minas Basin Pulp & Power Co., Ltd.
Mohawk Corp., Ltd.
Provincial Paper Ltd.
Quebec North Shore Paper Co.
Richmond Pulp & Paper Co. of
Canada, Ltd.
St. George Pulp & Paper Co., Ltd.
St. Lawrence Corp., Ltd.
St. Raymond Paper, Ltd.
Soucy, Inc., F. F.
Thorold Pulp Co., Ltd.
Finland Finland Elving, Anton Stockfors, A/B Svarta Bruk, O/Y, A/B Norway Viul Tresliperi, A/S Sweden weden
Bure Aktiebolag
Edsvalla Bruk, Aktiebolaget
Forshaga Sulfit Aktiebolag
Forsse Woodpulp Mill
Hogfors Trasliperi, A/B
Iggesunds Bruk, Aktiebolaget
Kramfors Aktiebolag
Marma Langrors A/B
Munksunds Aktiebolag
Rottneros Bruk, Aktiebolaget
Scharins-Soner Aktiebolaget

# ESPARTO, BLEACHED

France L'Alfa S. A.

# STRAW, BLEACHED

The Netherlands

Coöp. Stroocartonfabriek N. V. Stroostoffabriek N. V. Maatschappij tot Stroveredeling









# BLEACHED AND UNBLEACHED SULPHATE

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Semi-Bleached, Unbleached, and Specialty
SULPHATE PULPS

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589 Fifth Avenue NEW YORK

# World Producers of Market Pulp

Compiled especially by PULP & PAPER magazine. Listings following company names and addresses give type of pulp and brand names. All grades are softwood unless otherwise specified.

### UNITED STATES

American Wood Board Co. Schuylerville, N.Y. Groundwood Standard, unbleached

Bowaters Southern Paper Corp. Mill at: Calhoun, Tenn. Sales: The Bowater Paper Co., Inc. 250 Park Ave., New York 17, N.Y. Sulfate semi-bleached

Brown Company
General Sales Office:
150 Causeway St., Boston 14,
Mass.
Branch Offices:
500 Fifth Ave., New York 36, N.Y.
110 S. Dearborn St., Chicago 3, Ill.
681 Market St., San Francisco,
Calif.

Calif.
Mill at: Berlin, N.H.
Sulfite bleached
Softwood and hardwood
Dissolving and related grades
Special grades
Sulfate—bleached
Sulfate—unbleached
Softwood, hardwood

Screenings
Sulfite—Sulfate
Brands:
Solka Alpha V; Solka Photographic; Solka Soft Alpha;
Solka Dur Sylvan; Solka Dur
Natus; Solka Special Dur Alba;
Solka Floc (bleached,
unbleached)

Brunswick Pulp & Paper Co.
Mill at: Brunswick, Ga.
Agent: Mead Pulp Sales, Inc.
Sulfate, bleached
Grade—Pine hardwood
Brand: Brunswick

Buckeye Cellulose Corp.

Foley, Fla.
Agent: Bulkley, Dunton Pulp Co.,
Inc.
(bleached sulfate only)
Dissolving
Sulfate, bleached

Champion Paper & Fibre Co.

Executive Office: Hamilton, O.
Mills at:
Canton, N.C.
Pasadena, Texas

Agent: Castle & Overton, Inc.
Sulfate, bleached
Semi-bleached
Bleached-hardwood
Brands: Dixie Prime Bleached
Sulfate; Lone Star Prime
Semi-Bleached Sulfate; Prime
Bleached Hardwood Sulfate

Chesapeake Corp. of Virginia
West Point, Va.
Agents: Castle & Overton, Inc.
Cellulose Sales Co., Inc.
The Parsons & Whittemore/Lyddon
Organization
Woodpulp, Inc.
(Prime Quality Kraft)
Sulfate, unbleached
Standard grades

Brands: Chesapeake Prime Unbleached Kraft and Chesapeake Prime Unbleached Kraft (soft cook)

Coconino Pulp & Paper Co. Inc. Flagstaff, Ariz. Agents: Gottesman & Co., Inc. Central Natl. Corp. (for export) Dry unbleached groundwood

Coosa River Newsprint Co.
Coosa Pines, Ala.
Agent: Bulkley, Dunton Pulp Co.,
Inc.
Sulfate, bleached

Container Corp. of America
Main Office:
38 S. Dearborn St., Chicago 3, Ill.
Mill at: Fernandina, Fla.
Agents: Gottesman & Co., Inc.
Central Natl. Corp. (for export)
Sulfate, unbleached
Special grades
Brand: Conus

Crown Zellerbach Corp.

Executive office:
343 Sansome St., San Francisco
19, Calif.
Mills at: Camas, Wash.
Port Townsend, Wash.
Sulfite, bleached, unbleached
Sulfate, bleached, unbleached

East Texas Pulp and Paper Co.
Evadale, Texas
Sulfate, bleached
Softwood and Hardwood
Brand: Eastex

Eastern Corporation

Executive office:
Bangor, Me.
Mills at:
Lincoln, Maine
South Brewer, Maine
Agents: Gottesman & Co., Inc.
Central Natl. Corp. (for export)
Sulfite, bleached
Special grades
Standard grades
Standard grades
Standard grades—hardwood
Brand: Purocell

Halifax Paper Co., Inc.
Roanoke Rapids, N. C.
Sulfate, bleached
Partially bleached
Sulfate, unbleached
Standard grades
Standard grades—hardwood
Brand: Halifax

Hollingsworth & Whitney Div., Scott Paper Co.
Front and Market Sts., Chester, Pa. Mills at:
Madison, Me. (Groundwood)
Mobile, Ala. (Sulfate)
Winslow, Me. (Sulfite)
Groundwood
Special grades—bleached
Special grades—unbleached
Sulfate
Semi-bleached
Bleached Sulfite Unbleached Semi-bleached Bleached

International Paper Co.

Executive Office:
220 E. 42nd St., New York 17, N.Y.
Mills at:
Natchez, Miss.
Spring Hill, La.
Agents: Gottesman & Co., Inc.
Sulfate, bleached and unbleached paper grades
Riordon Sales Corp., Ltd.
Bleached sulfate dissolving grades
Brands: Novocell; Tenacell;
Supercell

Ketchikan Pulp Co.
Ketchikan, Ward Cove, Alaska
Agent: Bulkley, Dunton Pulp Co.,
Inc.
Sulfite
Bleached
Dissolving

Little Rapids Division
Charmin Paper Mills
De Pere, Wis.
Groundwood
Standard grades
Bleached and unbleached

The Mead Corp.

Mill at:
 Kingsport, Tenn.
Agent: Mead Pulp Sales, Inc.
 Soda
 Bleached
 Brand: Mead

National Container Corp.

Executive office: 7 Central Park
West, New York, N. Y.
Mills at:
Jacksonville, Fla.
Valdosta, Ga.
Tomahawk, Wis.
Big Island, Va.
Jaite, O.
Reading, Pa.
Sulfate, unbleached
Standard grades

New York and Penn 230 Park Ave., New York 17, N. Y. Mill at: Willsboro, N. Y. Soda, bleached

North Carolina Pulp Co.
Mill at: Plymouth, N. C.
Branch office:
Box 710, Camden 1, N. J.
Sulfate, bleached
Standard grades
Sulfate, unbleached
Board grades

Oswego Falls Corp.
Fulton, N.Y.
Groundwood
Standard unbleached, bleached

# PUWELL RIVER UNDLEAGHED SULPHITE PULP

- \*STRENGTH
- \* COLOR
- \*CLEANLINESS
- \*SERVICE
- \*DEPENDABLE SUPPLY

\*POWELL RIVER SALES COMPANY LIMITED



### **Producers**

### **UNITED STATES continued**

Oxford Paper Co.

Executive office:
230 Park Ave, New York 17, N.Y.
Mill at: Rumford, Maine
Agents: Parsons & Whittemore,
Inc.; (for export)
Stora Kopparberg Corp.
(Bleached and unbleached
hardwood sulfate)

Brand: Harbrite

Penobscot Chemical Fibre Co.

Executive office:
211 Congress St., Boston, Mass.
Mills at: Great Works, Me.
Sulfite, bleached
Standard grades Soda Bleached Brand: Penobscot

Potlatch Forests, Inc.

Lewiston, Ida. Agent: Bulkley, Dunton Pulp Co., Sulfate, bleached

Puget Sound Pulp and Timber Co. Bellingham, Wash.
Agent: Bulkley, Dunton Pulp Co.
Sulfite, bleached

Rayonier Inc.

Executive & Sales office: 161 E. 42nd St., New York 17, N. Y. Mills at: Fernandina, Fla.
Hoquiam, Wash.
Port Angeles, Wash.
Shelton, Wash. Shelton, W Jesup, Ga.

Riegel Paper Corp.—Carolina Div. Executive office: 260 Madison Ave., New York N.Y.

Mill at: Acme, N.C.
Agents: Bulkley, Dunton Pulp Co.
Bulkley, Dunton, Ltd.
Gottesman & Co., Inc. Johnsen, Jorgensen & Wettre,

Ltd. Bleached softwood and hard-wood kraft Brands: Albacel and Astracel

St. Marys Kraft Corp.

St. Marys, Ga. Agents: Gilman Paper Co. Sulfate Bleached Unbleached

Sulfate, bleached only

Bleached, high brightness Gottesman & Co., Inc. Central National Corp. (for export)

St. Regis Paper Co.

Executive office: 150 E. 42nd St., New York 17, N.Y. N.Y.
Mill at: Tacoma, Wash.
Sole Agents: St. Regis Paper Co.
Sulfate, bleached and unbleached
Superstandard grades Brand: Tacoma

Scott Paper Co.

cott Paper Co.

West Coast Division

Everett, Wash.

Manager of Pulp Sales

R. M. Heath

Scott Paper Co.

Chester, Pa.

Sulfite, bleached

(Dissolving and related grades) grades) Standard grades Screenings Brand: Soundview

Southland Paper Mills, Inc. Lufkin, Texas Agent: Perkins-Goodwin Co.

Sulfate, unbleached Standard grades Spaulding Pulp and Paper Co.

Newberg, Ore. Agent: Perkins-Goodwin Co. Sulfite, unbleached Standard grades

Tomahawk Pulp Co. Tomahawk, Wis.

Branch office: 115 S. Superior St., Appleton, Wis. Groundwood Fine tissue grades Toweling, and free board Grades to specifications

West Virginia Pulp and Paper Co.

Executive office:
230 Park Ave., New York 17, N.Y.
Mills at: Mechanicville, N. Y.
Tyrone, Pa.
Williamsburg, Pa. Luke, Md. Covington, Va. Charleston, S. C. Sulfate Unbleached

Weyerhaeuser Timber Co., Pulp Div.

Sales office: 230 Park Ave., New York 17, N.Y. 230 Fark Ave., the Branches:
Bank Bldg., Clinton, Mass.
400 W. Madison St., Chicago 6, Ill.
681 Market St., San Francisco,

681 Market St., San Francisco, Calif. Mills at: Everett, Wash. Longview, Wash. Sulfite, bleached Dissolving and related grades Papermaking grades Sulfate, bleached Papermaking grades Papermaking grades

### CANADA

Abitibi Power & Paper Co., Ltd. 408 University Ave., Toronto 2, Ont.
Mills at: Sault Ste. Marie, Ont.
Smooth Rock Falls, Ont.
Agent: Mead Pulp Sales, Inc.
Sulfite, bleached
Sulfite, unbleached Screenings Sulfite Side Run News Brand: Abitibi

Alaska Pine & Cellulose, Ltd. (Subsidiary of Rayonier Inc.) 1111 W. Georgia St., Vancouver 5, B. C. Mills at: Port Alice, B.C. Woodfibre, B.C. Sulfite, bleached Paper and dissolving grades Brand: Alaska Pine & Cellulose

Alliance Paper Mills, Ltd. Mance Paper Mills, Ltd.
407 McGill St., Montreal 1, Que.
Mill at: Merritton, Ont.
Agent: Howard Smith Paper Mills,
Ltd. (Pulp Sales Dept.)
Sulfite, bleached
Special grades
Glassine
Tienve

Tissue Brand: Alliance

# WOOD PULP ACER McLERNON

INCORPORATED

CANADA CEMENT BUILDING

MONTREAL



# Which hand holds your product's future?



Both, perhaps—for only Buckeye can supply quality cellulose from both cotton linters and wood pulp. This versatility is one of the unique advantages Buckeye can offer each and every account.

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Finally, you can rely on Buckeye to see to it that your order is processed, cut, and loaded-exactly as specified.

Buckeye Cellulose Corporation, Memphis 8, Tenn.





**Producers CANADA** continued

Anglo-Canadian Pulp & Paper Mills,

10-16 Blvd. des Capucins, Quebec Agent: Northeastern Paper Prod-ucts, Ltd. Sulfite, unbleached Strong Brand: Anglocan

Anglo-Newfoundland Development Co.

Grand Falls, Newfoundland

Bathurst Power & Paper Co., Ltd.

Head Office: Bathurst, N. B.
Exec. Offices: 760 Sun Life Bldg.,
Montreal 2, Que.
Mill at: Bathurst, N.B.
Agents: Acer McLernon, Inc. (Montreal)
Strong unbleached sulfite;
Groundwood
Brand: Bathurst

Bowater's Newfoundland Pulp & Paper Mills, Ltd.

Corner Brook, Newfoundland Agent: The Bowater Paper Co., Inc. Sulfite, unbleached Standard grades

John Breakey, Limited Breakey, Elitted
Breakeyville, Que.
Agents: Pulp & Paper Trading Co.
Woodpulp, Inc.
Groundwood

Canada Paper Co.

Margill St., Montreal 1, Que.
Mill at: Windsor Mills, Que.
Agent: Howard Smith Paper Mills,
Ltd. (Pulp Sales Deyt.) Sulfate, unbleached Special Condenser Brand: Windsor

Canadian Forest Products Ltd.

Howe Sound Pulp Division
Executive Office: 999 W. Pender St.,
Vancouver 1, B.C.
Mill at: Port Mellon, B.C.
Agent: Perkins-Goodwin Co. Sulfate Semi-bleached, unbleached

Canadian International Paper Co.

Sun Life Bldg., Montreal 2, Que. Mills at: Calumet, Que. Mills at: Calumet, Que.
Hawkesbury, Ont.
Gatineau, Que.
LaTuque, Que.
Temiskaming, Que.
Trois Rivieres, Que.
Sold by: Riordon Sales Corp., Ltd.
Sulfite, bleached
Dissolving and paper grades
Sulfite, unbleached
Paper grade
Screenings Screenings Sulfite Sulfate

High Alpha, bleached and un-bleached, for specialty papers Brands: Novocell; Tenacell; Film-cell; Acetacell; Photocell; Plasticell

Columbia Cellulose Co. Ltd.

2035 Guy Street, Montreal 25, Que. Mill at Prince Rupert, B. C. Sulfite, bleached Paper and dissolving grades

Consolidated Paper Corp., Ltd.

Sales office:
Consolidated Paper Sales, Ltd.
Sun Life Bldg., Montreal, Que. Mills at: ills at:
Port Alfred, Que.
Grand Mere, Que.
Cap de la Madeleine, Que.
Shawinigan Falls, Que. Three Rivers, Que.

Distributor: Castle & Overton, Inc.

Sulfite, unbleached Standard grades Sulfate, unbleached Special grades Standard grades

Brands: Laurentide; Port Alfred; Wayagamack

Donnacona Paper Co., Ltd.

407 McGill Street, Montreal, Que. Mill at Donnacona, Que. Agent: Howard Smith Paper Mills
Ltd.,
Pulp Sales Dept.
Sulfite Standard unbleached Brand: Donnacona

Donohue Brothers Ltd.

Clermont, Que Groundwood Standard unbleached Brand: Murray Bay (All sold under long term contracts)

Dryden Paper Co., Ltd.

Dryden, Ont.
Sales Representatives:
Dryden Paper Sales, Ltd., Winnipeg, Man.; Northeastern Paper Products Ltd., Montmorency Paper Co., Inc.
Bleached and unbleached sulfate pulps Standard grades Brand: Dryden

Fraser Companies, Ltd.

Sales office:
1010 St. Catherine St. W.
Montreal 2, Que.
Mills at: Edmundston, N. B.
Newcastle, N. B.
General offices: Edmundston, N. B.
Sulfite, bleached
Stondard grades Standard grades
Sulfite, unbleached
Standard grades
Groundwood Standard unbleached Sulfate, bleached Standard grades Sulfate, unbleached Standard grades

# Montmorency Paper Company, Inc.

Representing

Northeastern Paper Products Limited Quebec, P. Q.

**DRYDEN Bleached Sulphate Pulp DRYDEN Unbleached Sulphate Pulp** ANGLO-CANADIAN Unbleached

> New York Office: 400 Madison Avenue Telephone: PLaza 3-4280

Sulphite Pulp

Gaspesia Sulphite Company Limited Chandler, P. Q.

**GASPESIA Bleached Sulphite Pulp** 

Chicago Office:

20 North Wacker Drive Telephone: RAndolph 6-3730

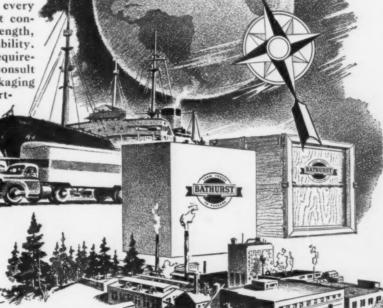


**BATHURST** CONTAINERS

For shipments to the four corners of the earth-or to the four corners of your own town-Bathurst offers you a complete line of corrugated containers and wirebound boxes.

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ST. LAURENT, QUE.

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HAMILTON, ONT. TORONTO, ONT. WHITBY, ONT. ST. LAURENT, QUE. MONTREAL, QUE.

56-1



**Producers** 

**CANADA** continued

Gair Co., Canada, Ltd.

111 Richmond St. West, Toronto 1. Ont.

Campbellford, Ont. Frankford, Ontario Groundwood

Standard unbleached

Brand: Gair

Gaspesia Sulphite Co., Ltd.
Main Office: P.O. Box 1487, Quebec,

Mill at: Chandler, Que.

Agents:
Canada and U. S.: Montmorency
Paper Co., Inc.
Overseas: Northeastern Paper
Products, Ltd.
Sulfite, bleached
Sulfite, unbleached, strong
unbleached, easy bleaching

Screenings, sulfite Brand: Gaspesia

The Great Lakes Paper Co., Ltd.

P.O. Box 430, Fort William, Ont.

Manufacturers in Canada of high quality Woodpulp

STORMONT grade Bleached Sulphite

SEAGULL grade Bleached Soda pulp made at Cornwall, Ont.

CRABTREE grade Groundwood made at Crabtree Mills, Que.

DONNACONA grade Unbleached Sulphite made at Donnacona, Que.

WINDSOR grade Unbleached Kraft made at Windsor Mills, Que.

Sold and distributed by

**Pulp Sales Department Howard Smith Paper Mills Limited** 

407 McGill Street

Montreal 1, Canada

Customer Services: Canadian Wood Pulp Corp., New York and Chicago Sulfite, unbleached Standard grades
Sulfite, unbleached glassine
screenings
Brand: Great Lakes

Gulf Pulp & Paper Co. 65 St. Anne St., Quebec, Que.
Mill at: Clarke City, Que.
Agent: Price & Pierce, Ltd.
Groundwood—pressed wet
Special unbleached
Standard unbleached

Screenings Brand: Gulf

Halifax Power & Pulp Co., Ltd.

Sheet Harbour, Nova Scotia Agents: Gottesman & Co., Inc. Central National Corp. (for ex-Groundwood

Standard unbleached

Howard Smith Paper Mills Ltd.

oward Smith Paper Mills Ltd.
407 McGill St., Montreal 1, Que.
Mills at: Cornwall, Ont.
Crabtree Mills, Que.
Agent: Howard Smith Paper Mills
Ltd. (Pulp Sales Dept.)
Sulfite, bleached
Standard grades
Sode

Bleached Groundwood

Standard unbleached Brands: Crabtree; Seagull; Stor-

Irving Pulp & Paper Ltd.

P.O. Box 280, Lancaster, N. B. Agents: Bulkley, Dunton Pulp Co. Sulfite, bleached

Prime grades Brand: Saint John

The KVP Co., Ltd.

Espanola, Ontario Sales Office: 200 Bay St., Toronto,

Sulfate, bleached

Lake Megantic Pulp Co.

Lake Megantic, Quebec Agent: Woodpulp, Inc.
Groundwood—unbleached (moist)
Board and tissue
Brand: Lake Megantic

Lotbiniere Pulp & Paper Co., Ltd.

Danville, Que.
Mill at: Nicolet Falls, Que.
Agents: The Parsons & Whitemore/
Lyddon Organization
Groundwood—unbleached (moist)

Standard grades-tissue and

Brand: Lotbiniere

James Maclaren Co., Ltd.

Buckingham, Que. Agents: Gottesman & Co., Inc. Central Nat'l. Corp. (for export) Sulfite, unbleached Standard grades Groundwood

MacMillan & Bloedel Ltd. 837 W. Hastings, St., Vancouver, B.C. Mill at: Port Alberni, B.C.



# PULP & PAPER

# WORLD MARKET PULP DIRECTORY

# **Producers**

### **CANADA** continued

Agents: U.S.A.—Mead Pulp Sales, Inc.
All other countries—Price & Pierce, Ltd.
Sulfate, unbleached
Brands: Bloedel and Bloedel "A"
Mill at: Harmac, B.C.
Agent:All countries Price & Pierce, Ltd.
Sulfate, unbleached
Brand: Harmac

Marathon Paper Mills of Canada, Ltd.
Sales office:
Marathon Corp., Rothschild, Wis.
Mill at: Marathon, Ontario
Bleached sulfate
Bleached hardwood sulfate

Mersey Paper Co., Ltd.
Liverpool, N.S.
Agent: Price & Pierce, Ltd.
Sulfite
Standard unbleached
Pulping—Side Run News
Brand: Mersey

Minas Basin Pulp & Power Co. Ltd.
Hantsport, N.S.
Agent: Price & Pierce, Ltd.
Groundwood
Special unbleached
Standard unbleached
Brand: Minas Basin

Mohawk Corp., Ltd.
P.O. Box 408, Riviere du Loup, Que.
Mill at: Riviere du Loup
Agents: Gottesman & Co. Inc.
Central Natl. Corp. (for export)
Groundwood
Standard unbleached

North Western Pulp & Power, Ltd. (Subsidiary of St. Regis Paper Co.) Hinton, Alberta Sole agents: St. Regis Paper Co. Sulfate, bleached and unbleached Superstandard Grades Brand: Alberta Hi-Brite

Ontario Paper Co., Ltd.
Thorold, Cntario
Agents: Bulkley, Dunton Pulp Co.,
Inc.
J. J. Nolan
The Parsons & Whittemore/Lyddon
Organization
Perkins-Goodwin Co.
Woodpulp, Inc.
Sulfite, unbleached
Special grades—glassine
Standard grades
Brand: Ontario

Powell River Co., Ltd.
Standard Bldg., Vancouver, B.C.
Sales office:
Powell River Sales Co., Ltd.
Standard Bank Bldg., Vancouver,
B.C.
U. S. Sales office:
Powell River Sales Co., Ltd.
10 E. 40th St., New York, N.Y.
Mill at: Powell River, B.C.
Sulfite, unbleached
Standard grades
Brand: Powell River

Provincial Paper Ltd.

388 University Ave., Toronto, Ont.
Mill at: Port Arthur, Ontario
Agent: Mead Pulp Sales Inc.
Groundwood
Standard unbleached
Screenings
Sulfite
Brand: Provincial

Quebec North Shore Paper Co.

Head office:
680 Sherbrooke St. W., Montreal,
Que.
Sales office:
Ontario Paper Co., Ltd., Thorold,
Ontario
Mill at: Baie Comeau, Que.
Agents: Bulkley, Dunton Pulp Co.,
Inc.
The Parsons & Whittemore/Lyddon
Organization
Perkins-Goodwin Co.
Sulfite, unbleached
Special grades
Standard grades
Groundwood
Standard unbleached

Restignuche Co. Ltd.

Restigouche Co., Ltd.
General Office: Edmundston, N.B.
Sales Office. 1010 St. Catherine St.,
West, Montreal 2, Que.
Mill at: Atholville, N.B.
Sulfite, bleached
Dissolving grades (for rayon
cellophane and plastics)
Paper grades
Brands: Resticose; Restophane

Richmond Pulp & Paper Co. of Canada, Ltd.

Bromptonville, Que.
Agent: Kruger Paper Co., Inc.
Groundwood
Standard unbleached
Brand: Bromptonville

St. George Pulp & Paper Co., Ltd.

Mill at: St. George, N. B.
P.O. Box 847, St. John, N. B.
Agents: Bulkley, Dunton Pulp Co.
Pulp & Paper Trading Co.
Woodpulp, Inc.
Groundwood
Bleached
Unbleached
Brand: Fibrewhite

St. Lawrence Corp., Ltd.

Sales office:
St. Lawrence Sales Co., Ltd.
Sun Life Bldg., Montreal, Que.
Mills at:
Dolbeau, Que.
East Angus, Que.
Nipigon, Ont.
Red Rock, Ont.
Three Rivers, Que.
Agents: Gottesman & Co., Inc.
Central Natl. Corp. (for export)
Sulfite, unbleached
Standard grades
Bleachable grades
Bleachable grades
Sulfate, unbleached
Standard grades
Groundwood
Standard unbleached

St. Raymond Paper, Ltd.

1510 Drummond St., Montreal 25, Que.
Mills at:
Desbiens, Que.
St. Raymond, Que.
Agent: St. Raymond Sales Ltd.
1510 Drummond St., Montreal, Que.
Sulfite, unbleached
Special grades
Standard grades
Groundwood
Standard unbleached
Screenings
Sulfite
Brand: St. Raymond

Soucy, Inc., F. F.
Chemin du Lac, Co. Temiscouata,
Que.
Agent: Bulkley, Dunton Pulp Co.
Groundwood
Standard unbleached
Brand: Soucy, Snow Flake

Thorold Pulp Co., Ltd.
Front Street
Thorold, Ontario
Groundwood
Standard unbleached

# EUROPEAN CONTINENT

### **AUSTRIA**

Kellner-Partington Paper Pulp Co. Ltd
Hallein bei Salzburg, Austria
Mills at: Hallein & Villach
Agent: The Borregaard Co., Inc.
Sulfite, bleached
Dissolving and related grades
Special grades
Brands: V.S.; Super V.S.;
Super A-1; A-1

# FINLAND

Aanekoski O/Y
Aanekoski
Representative: Pulp Sales Corp.
Sulfite, unbleached
Special grades—softwood
Brand: Aanekoski (Blue) Strong;
also second quality

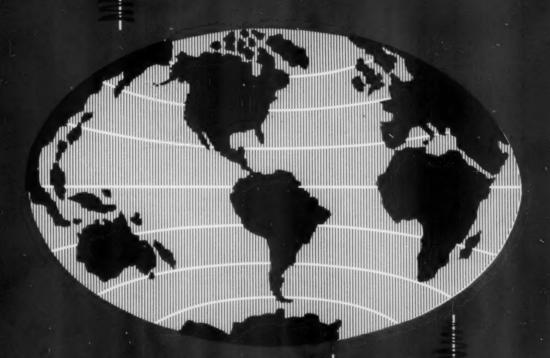
Ahlstrom, A. O/Y
Warkaus
Representative: Pulp Sales Corp.
Sulfite, unbleached
Special grades
Brands: Ahlstrom (Blue) Strong;
Ahlstrom BL Bleachable; Ahlstrom EB Easy Bleaching

Eklof, Aug., A/B

Borga
Representative: Pulp Sales Corp.
Sulfite, unbleached
Special grades
Standard grades
Brands: Eklof (Green) Extra
Strong; Eklof (Blue) Strong;
Eklof BL Bleachable; also
semi-prime, second and third
qualities, and dry screenings

Elving, Anton (Siuro)
Siuro
Representative: Pulp Sales Corp.
Groundwood (In Thin Sheets)
Special unbleached—hardwood
Standard unbleached
Brand: Siuro

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295 MADISON AVENUE NEW YORK 17 N. Y

# **Producers**

# **FINLAND** continued

Enqvist, J. W. O/Y, (Sphinx)

Lielahti

Representative: Pulp Sales Corp. Sulfite, bleached

Dissolving and Special Grades

Standard grades
Standard grades
Brands: Sphinx (Red) for Rayon;
Sphinx (Red) Extra Soft;
Sphinx (Black) Soft; Sphinx
(Blue) Strong; also semiprime, second and third qualities and dry screenings.

Enso-Gutzeit O Y (Tornator, Seal, Gutzeit)

Kaukopaa Kotka

Tainionkoski Representative: Pulp Sales Corp.

epresentative: Pulp Sales Corp.
Sulfate, unbleached
Special grades
Standard grades
Brands: Tornator (Seal) (Green)
Extra Strong; Tornator (Seal)
Strong; Tornator (Seal) L&S
Light & Strong; Gutzeit
(Blue) Strong; also second
qualities

qualities
Sulfate, bleached
Brand: Tornator (Seal) Bleached

Sulfite, unbleached Special grades Brands: Tornator rands: Tornator (Glassine);
Tornator (Green) Extra
Strong; Tornator (Blue)
Strong; Tornator BL Bleachable; Tornator EB Easy Bleaching

Haarlan Selluloosayhtio

Lievestuore Representative: Pulp Sales Corp. Sulfite, bleached
Special grades
Standard grades — softwood,
hardwood

Brands: Haarla (Green) Extra Strong; Haarla (Blue) Strong; Haarla (Black) Soft; Haarla (Green) Glassine; Haarla As-pen (hardwood); Haarla Birch (hardwood)

Jakobstads Cellulosa A/B

Jakobstad Jakobstad
Representative: Pulp Sales Corp.
Sulfite, unbleached
Special grades
Standard grades
Brands: Jakobstad (Green) Extra
Strong; Jakobstad (Blue) Strong

Joutseno-Pulp O/Y

Joutseno Representative: Pulp Sales Corp. Sulfate, unbleached
Special grades
Standard grades
Brands: JsssP (Green) Extra
Strong; JsssP (Blue) Strong; also second qualities

Kajaani O/Y

Kajaani Representative: Pulp Sales Corp. Sulfite, unbleached Special grades

Brands: Kajaani BL Bleachable; Kajaani EB Easy Bleaching; also semi-prime qualities and dry screenings

Kaukas Fabrik, A/B

Kaukas Representative: Pulp Sales Corp. Sulfite, bleached Dissolving and special grades

Standard grades
Standard grades
Brands: KF One Crown; Two
Crown; Three Crown; Four
Crown for viscose; KF One A;
Two A for Acetate; KF (Blue)
Strong; KF (Black) Soft; KF
(Red) Extra Soft; also second and third qualities

Kemi, O/Y

Kemi Representative: Pulp Sales Corp. Sulfite unbleached

Suinte unpleached
Special grades
Standard grades
Brands: Kemi (Green) Extra
Strong; Kemi (Blue) Strong;
Kemi BL Bleachable; also semiprime, second qualities and dry

screenings Sulfate, unbleached

Surface, unbicached Special grades Standard grades Brands: Kemi (Blue) Strong; Kemi W; Kemi Con Condenser; also second qualities

Kymmene, A/B

ymmene, A/B
Kuusankoski
Representative: Pulp Sales Corp.
Sulfite, bleached
Special grades
Standard grades
Brands: Kuusankoski (Green)
Extra Strong Bond; Kuusankoski (Blue) Strong

Lohja-Kotka, O/Y

Lohja Representative: Pulp Sales Corp.
Sulfate, unbleached
Special grades Brand: Lohja (Blue) Strong

Nokia O/Y

Nokia Representative: Pulp Sales Corp. Sulfite, unbleached
Special grades
Standard grades
Brands: Nokia (Green) Extra
Strong; Nokia (Blue) Strong;
Nokia BL E Bleachable

Oulu O/Y

Oulu Representative: Pulp Sales Corp. Sulfate, unbleached Sulfate, unbleached
Special grades
Standard grades
Brands: Oulu (Green) Extra
Strong; Oulu (Blue) Strong;
Oulu L&S Light and Strong;
also second qualities
Sulfate, semi-bleached
Brands: Oulu Polaris 65, 70 Rauma Repola O/Y

Rauma

Rauma
Representative: Pulp Sales Corp.
Sulfite, bleached (new process)
Dissolving and Special grades
Brands: Rauma R, RR, RRR, for
Rayon; Rauma (Black) Soft;
Rauma (Blue) Strong; also
semi-prime and second qualities

Rosenlew, W. and Co., A/B

Bjorneborg Representative: Pulp Sales Corp.

epresentative: Pulp Sales Corp.
Sulfite, bleached
Dissolving and Special grades
Standard grades
Brands: Rosenlew VR, VS, J,
VV, Alpha; Rosenlew R, RR,
RRR for Rayon, F for photo;
Rosenlew (Red) Extra Soft;
Rosenlew (Bluck) Soft; Rosenlew (Blue) Strong; also semiprime qualities

Serlachius, G. A., O/Y

Mantta Representative: Pulp Sales Corp.

Sulfite, bleached
Special grades
Standard grades
Brands: G.S. (Blue) Strong; G.S. (Green) Extra Strong; G.S. (Green) G Extra Strong Glass-

ine Sulfite, unbleached Special grades Standard grades Brands: G.A.S. (Blue) Strong

Stockfors, A/B Lovisa Lovisa
Representatives: Pulp Sales Corp.
Dry groundwood (in thin sheets)
Standard unbleached
Brand: Stockfors

Sunila O/Y

Sunila
Representative: Pulp Sales Corp.
Sulfate, unbleached
Special grades
Standard grades
Brands: Sunila (Green) Extra
Strong; Sunila (Blue) Strong;
Sunila 400; Sunila L&S Light
and Strong
Sulfate, semi-bleached
Brand: Sunila (Semi-T) Sunila

Svarta Bruk, O/Y, A/B

Svarta Representative: Pulp Sales Corp. Dry groundwood (in thin sheets) Standard unbleached Brand: Svarta

Toppila, O/Y

Oulu-Uleaborg Representative: Pulp Sales Corp. Sulfite, unbleached Standard grades - softwood. wet pulp
Brand: Toppila (Blue) Strong;
also second and third qualities

Veitsiluoto O/Y (V.L.)

Veitsiluoto
Representative: Pulp Sales Corp.
Sulfite, unbleached
Standard grades
Brands: VL (Green) Extra
Strong; VL (Blue) Strong; also
semi-prime, second and third



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**Producers** 

**FINLAND** continued

# WEST GERMANY

Semi-chemical pulp Special grades—wet pulp Brands: VL (Blue) SA; VL (Black) SA Zellstofffabrik Waldhof

Leberberg 9, Wiesbaden 16, Germany Agent: Castle & Overton, Inc. Bleached sulfite

# Yhtyneet Paperitehtaat O/Y

Jamsankoski and Walkiakoski Representative: Pulp Sales Corp. Sulfite, bleached
Standard grades — softwood,
hardwood
Brands: Ilves (Black) Soft; Ilves

qualities, and dry screenings

Aspen (hardwood)
Sulfite, unbleached
Special grades
Standard grades
Brande: Walking

d grades Walkiakoski Walki akoski (Blue) Strong; Bleachable

### THE NETHERLANDS

Coop. Stroocartonfabriek

Appingedam, Holland Agent: Eduard Van Leer, Amsterdam
Straw pulp, dry and wet
Brand: De Eendracht

N. V. Stroostoffabriek

Veendam, Holland Agent: The Parsons & Whittemore/ Organization Bleached sulfate straw pulp, dry Brand: Phoenix

# N. V. Maatschappij tot Stroveredeling

Arnhem, Holland Bleached Celdecor-Pomilio straw pulp, dry Brand: Sove

### NORWAY

Borregaard, Aktieselskapet

Sarpsborg Agent: The Borregaard Co., Inc. Sulfite, bleached
Dissolving and related grades Special grades Special grades Standard grades Brands: V.S.; Super V.S.; Super A-1; A-1

Greaker Cellulosefabrik A/S

Greaker Agent: Price & Pierce, Ltd. Sulfite, bleached
Special grades
Standard grades
Brand: Greaker Sunshine

# Hurum Fabriker, Aktieselskabet

Agent: Castle & Overton, Inc. Sulfate, bleached Sulfate, unbleached

# Katfos Fabriker, Aktieselskabet

Geithus Agent: Castle & Overton, Inc. Sulfite, unbleached

# Krogstad Cellulosefabrik Aktieselska-

Krogstad, pr. Mjondalen Mjondalen Agent: Castle & Overton, Inc. Sulfite, bleached Standard grades

# FRANCE

L'Alfa S.A.

Paris, France Agents: The Parsons & Whittemore/ Lyddon Organization Bleached Esparto

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(Aerial view Abitibi Mill, Smooth Rock Falls, Ontario)

# MEAD GIVES YOU THE QUALITY OF PULP YOU NEED

Mead has the quality pulps to fit your needs, whether chemical or mechanical, from hardwoods or soft woods, bleached or unbleached. These come from such a wide geographical range as Ontario, British Columbia, New Brunswick, Georgia, Tennessee, Maine and Wisconsin.

# Abitibi Bleached Sulphite

Produced from the matchless characteristics of Canadian Black Swamp Spruce, for more than a quarter

of a century Abitibi Bleached Sulphite has successfully answered the requirements of leading manufacturers of tissue, white papers and board. Outstanding for cleanliness, printability and strength, Abitibi Pulp is also known for its brightness, workability, and rapid development to maximum Mullen.

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# MEAD PULP SALES, INC. . Distributors of Wood Pulp

BLEACHED AND UNBLEACHED CHEMICAL AND MECHANICAL WOOD PULP

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**Producers** 

NORWAY continued

Mjondalen Cellulosefabrik Aktieselskabet

Mjondalen P. O.: Drammen Agent: Perkins-Goodwin Co. Sulfite, bleached Standard grades Brand: Mjondalen BA Viul Tresliperi, A/S
Viul Station
Honefoss
Agent: Castle & Overton, Inc.
Groundwood
Dry and Wet

Tofte Cellulosefabrik Aktieselskabet

Oslo Agent: Castle & Overton, Inc. Sulfite, bleached Special grades Standard grades

Toten Cellulosefabrik Aktieselskabet

Nygaard Station
Gjovikbanen
Agent: Castle & Overton, Inc.
Sulfite, bleached
Standard grades
Brands: Toten TTT Prime
Bleached

Vestfos Cellulosefabrik Aktieselskabet

Vestfossen Railway Station Vestfossen Agent: Castle & Overton, Inc. Sulfite, bleached Special grades Standard grades

SWEDEN

Bengtsfors Sulfitaktiebolag

Bengtsfors
Agents: Lyddon & Co. (America)
Inc., Parsons & Whittemore, Inc.
Sulfite, bleached
Standard grades
Brands: Bengtsfors Prime Bl.;
Dissolving and related grades
Brands: Corona Super I; Corona
Super II; Corona USA

Bergvik och Ala Aktiebolag

Soderhamn
Agent: Elof Hansson, Inc.
Sulfite, unbleached (Mitscherlich)
Standard grades
Sulfate, unbleached
Standard grades
Brands: Goat S; Circle G; Goat
Kraft; Star; J

Billeruds Aktiebolag

Saeffle
Agent: Elof Hansson, Inc.
Sulfite, bleached
Dissolving and related grades
Special grades
Standard grades
Brands: Billerud S; SS; SSS; VL;
Billerud Castle

Bure Aktiebolag

Burea Agent: Cellulose Sales Co., Inc. Groundwood Dry Brand: Bure

Dynas Aktiebolag

Waija
Agents: Gottesman & Co., Inc.
Perkins-Goodwin Co.
Sulfate, unbleached
Special grades
Standard grades
Brands: Dynas; Dynas Chlorine
No. 5

Eds Cellulosafabriks Aktiebolag

Eds Bruk
Agent: Elof Hansson, Inc.
Sulfate, unbleached
Special grades
Brands: Eds Two Stars Soft A;
Light & Strong Kraft

Edsvalla Bruk, Aktiebolaget
Edsvalla
Agent: The Borregaard Co., Inc.
Sulfite, bleached
Dissolving and related grades

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Bellingham plans



Converting mills use

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PUGET PULP is bleached sulphite—clean and clear enough for the finest product, strong enough for the hardest use.

PUGET PULP is produced in steadily expanding amount in one of the most scientifically up-to-date mills in America.

**PUGET PULP** is made expressly for the market. Converting mill users are assured of a steady supply from a single non-competitive source.

Gear your operations to PUGET PULP.



With output now exceeding 450 tons daily, more PUGET PULP is available for the market

PUGET SOUND PULP AND TIMBER COMPANY

BELLINGHAM . WASHINGTON

**Producers** 

**SWEDEN** continued

Special grades Standard grades Brands: Edsvalla V.S.; Edsvalla Super; Edsvalla S.E.B.

Essviks Aktiebolag

Sundsvall
Agent: Cellulose Sales Co., Inc.
Sulfite, bleached
Brands: Essvik "Special" Tissue
Quality; Essvik "Three Star"
Prime Quality; "Pulpcose" Dissolving grades

RAYON PULP

Koranas Silk

**BLEACHED SULPHATES** 

Vigorwite Kraft

Manila Kraft

Forshaga Sulfit Aktiebolag

Forshaga
Agent: The Borregaard Co., Inc.
Sulfite, bleached
Dissolving and related grades

Special grades Standard grades Brands: Forshaga V.S.; Forshaga

Super; Forshaga

Forss Aktiebolag Kopmanholmen Agent: Price & Pierce, Ltd. Sulfate, bleached
Special grades
Standard grades
Sulfate, unbleached
Special grades
Brands: Forss Star; Forss OK

Forsse Woodpulp Mill

Oesterforse
Agent: Nordicus Inc.
(See John B. Lynch & Co., Inc.)
Groundwood Special unbleached dry

Gota Sulfitaktiebolaget

Gota Agent: Perkins-Goodwin Co. Sulfite, unbleached Standard grades Glassine grades

Hellefors Bruks Aktiebolag

Hellefors Agent: Elof Hansson, Inc. gent: Eloi Hansson, Inc.
Sulfite, unbleached
Special grades
Standard grades
Brands: HB; EB; HB Strong;
HB Diamond

Hissmofors Aktiebolag

Krokom Agent: Bulkley, Dunton Pulp Co., Sulfite, bleached Standard grades Brand: Elkhead

Hogfors Trasliperi, A/B

Haggenas Agent: Gottesman & Co., Inc. Groundwood Special unbleached Standard unbleached

Holmsunds Aktiebolag

Holmsund Agent: Cellulose Sales Co., Inc. Sulfate, unbleached
Brands: Obbola "30" Prime Light
& Strong Bleachable; Obbola
"50", "60" and "70" Prime
Strong Qualities; Obbola "K"
Refined Screenings

Hylte Bruks Aktiebolag

Hyltebruk Hyltebruk
Agent: Pagel, Horton & Co., Inc.
Sulfite, unbleached
Special grades
Standard grades
Brands: Hylte Bruk H.1 Prime
unbleached Sulfite; Hylte Bruk
H.1.B.; Hylte Bruk H.2; Hylte
Bruk H.3

Iggesunds Bruk, Aktiebolaget

Iggesund Agents: Bulkley, Dunton Pulp Co., Gottesman & Co., Inc. Perkins-Goodwin Co. Sulfite, bleached Suinte, bleached
Standard grades
Sulfate, bleached
Special grades
Standard grades
Sulfate, unbleached
Special grades
Standard grades
Groundwood

1956 Review Number-PULP & PAPER

11 Por EVERY PAPER MAKING REQUIREMENT KORSNAS AKTIEBOLAG BLEACHED SULPHITES BLEACHED SULPHITES Roburwite Extra Korsnas Tissue Korsnas Super Tissue

MO & DOMSJO A. B.

White Horse Strong White Horse Greaseproof White Horse Soft

Silverleaf Birch White Aspen Special

RAYON PULPS Dissolving & High Alpha Pulps for Rayon, Plastics & Specialties

BLEACHED SULPHATES Husum Extra White Bleached Kraft Husum White Birch

# STORVIKS SULFIT AKTIEBOLAG

UNBLEACHED SULPHITES Storvik "HS" Extra Strong Mitscherlich Glassine Mitscherlich

HYLTE BRUKS AKTIEBOLAG

UNBLEACHED SULPHITES HYLTE BRUK H.1. Prime Unbleached Sulphite

Exporters of Woodpulp

Pagel, Horton & Co., Inc.

347 Madison Avenue, New York 17, N. Y.

ESTABLISHED 1916

BLEACHED SULPHITE PULP

SOUNDVIEW



Scott Paper Company



























West Coast Division . Everett, Washington

#### WORLD MARKET PULP DIRECTORY

**Producers** 

**SWEDEN** continued

Special unbleached Standard unbleached Brands: Golden Anchor, Special, White Anchor

#### Kopparfors Aktiebolag

Ockelbo Agent: Perkins-Goodwin Co. Sulfate, bleached Special grades Super grades Standard grades Sulfate, unbleached Special Brands: Norrland One Star; KHB 90; Norrland Three Star; KHB Condenser

#### Korsnas Aktiebolag

Gavle 2 Agents: Pagel, Horton & Co., Inc. Sulfite, bleached Dissolving and related grades Special grades Super grades Standard grades
Standard grades
Sulfate, bleached
Super grade
Semi-bleached Semi-bleached
Brands: Roburwite Extra Prime
Strong Bl. Mitscherlich Sulphite; Korsnas Super Tissue
Prime Bl. Sulphite; Rayon
Pulp-Korsnas Silk; Vigorwite
Extra Prime Bl. Kraft; Manila
Prime Semi-bleached Kraft.

#### Kramfors Aktiebolag

Kramfors Kramfors
Agent: Cellulose Sales Co., Inc.
Sulfite, unbleached (Mitscherlich)
Kramfors "Puritan" Prime
Glassine quality (Shipped
either 30 to 50% moist or air
dry); Kramfors "AA" and
"Puritan" Prime Qualities;
Kramfors "B" Second Quality;
Kramfors "K" refined Screenings Ings Sulfate, unbleached Brands: Nensjo "30" Prime Light & Strong Bleachable; Nensjo "45" Bleachable; Nensjo "60" Strong; Nensjo "K" Refined Screenings Groundwood, Moist Byske Groundwood Mill Ulvvik Groundwood Mill

#### Mackmyra Sulfit Aktiebolag

Mackmyra Agent: Bulkley, Dunton Pulp Co., Inc.
Sulfite, unbleached Special grades Brands: MS; M

#### Marma Langrors A/B

Lottefors Agent: Price & Pierce, Ltd. Groundwood Special unbleached Brand: Lottefors L

#### Marma Langrors A/B Soderhamn

Agent: Price & Pierce, Ltd. gent: Price & Pierce, Ltd.
Sulfate, unbleached
Special grades
Standard grades
Brand: Marma LJ Kraft; Marma
LJ Kraft '50' Insulating

#### Marma Langrors Aktiebolag

Vallvik Valivik
Agent: Price & Pierce, Ltd.
Sulfite, unbleached
Special grades
Standard grades Screenings Brands: LJ Two Crown Extra, LJ One Crown

#### Mo & Domsjo, Aktiebolag

Main Office: Ornskoldsvik Sales Office: Strandvagen 1, Stockholm Mills at: Domsjo, Hornefors and Husum Agent: Pagel, Horton & Co., Inc. Sulfite, bleached Dissolving and related grades Special grades
Super grades—Softwood, hard-wood Standard grades — softwood, hardwood Sulfate, bleached

Super grades—softwood, hard-wood Brands: Husum Extra White Prime Bl. Kraft; Husum White Birch Prime Bl. Sulphate; White Horse Strong Prime Bleached Sulphite; White Bleached Sulphite; Horse Greaseproof Bleached Sulphite; Prime Horse Greaseproof Prime Bleached Sulphite; White Horse Soft Prime Bl. Sulphite; Silverleaf Birch Prime Bleached Sulphite; White Aspen Prime Bleached Sulphite; White Aspen Special Prime Bleached Sulphite; Modosilk; Modosilk Extra; Modosilk Super; Modocord; Modocta; Modofoto: Modolint. dofoto; Modoplast; Modolint.

#### Munkedals Aktiebolag

Munkedal Agent: Elof Hansson, Inc. Sulfite bleached Standard grades — softwood, hardwood Brands: Munkedal SGR; SAB

#### Munksjo, Aktiebolag

Jonkoping Agent: Gottesman & Co., Inc. Sulfate, unbleached Standard grades Brand: Aspa

#### Munksunds Aktiebolag

Agent: Cellulose Sales Co., Inc. Sulfate, unbleached Munksunds "50", "60" and "70" Prime Qualities Screenings Munksunds "K" refined screen-Groundwood Lulea groundwood mill

#### Oskarstrom Sulphite Mills Aktiebolag

Oskarstrom Agent: Elof Hansson, Inc. Sulfite Easy bleaching
Standard grades
Brands: Oskarstrom TT/S; TT; H; X

#### Ostrands Aktiebolag

Sundsvall Agent: Cellulose Sales Co., Inc. gent: Cellulose Sales Co., Inc.
Sulfate, bleached
Brands: Ostrand "W88" Prime;
Ostrand "WB" Half Prime;
Ostrand "WII" Second Quality;
Ostrand "X9" Prime Birch; Ostrand "XB" Half Prime Birch;
Ostrand "XII" Second Quality Birch

Birch
Sulfate, unbleached
Brands: Ostrand Light and extra
strong and Ostrand "40" Light
Colored Bleachable; Ostrand
"50", "60" and "70" Prime
Strong Qualities; Ostrand Birch
Prime Hardwood

#### Rottneros Bruk, Aktiebolaget

Rottneros Agent: Elof Hansson, Inc. Groundwood Standard unbleached-wet

#### Sandvikens Cellulosa A.B.

Sandviken Sandviken
Agent: Nordicus Inc.
(See John B. Lynch & Co., Inc.)
Sulfate, unbleached
Special grades
Brands: S Crown S; Special Cable

#### Scharins-Soner Aktiebolaget

Clemensnas Agent: Elof Hansson, Inc. Groundwood Standard unbleached-dry Brand: Skelleftea

#### Skonviks Aktiebolag

Skonvik Skonvik
Agent: Cellulose Sales Co., Inc.
Sulfite, bleached (Mitscherlich)
Skonvik "190" Bond grade;
Skonvik "G" Glassine grade;
Skonvik "Crown" Book grade

#### Stjernfors-Stalldalen Aktiebolaget

Stalldalen Agent: Elof Hansson, Inc. Sulfite, unbleached
Standard grades
Brand: Stalldalen SS

#### Stora Kopparbergs Bergslags A/B Falun

Agent: Stora Kopparberg Corp. Sulfite, unbleached (Stora 55) Standard grade Sulfate, bleached (Stora 32) Super grade Brands: Stora 55; Stora 32

#### Storviks Sulfit Aktiebolag Ockelbo

Ockelbo
Agent: Pagel, Horton & Co., Inc.
Sulfite, unbleached
Special grades
Standard grades
Brands: Storvik HS Extra Prime
Strong Unbleached Mitscherlich
Sulfite; Storvik Strong Unbleached Mitscherlich Sulfite:

For makers of Quality Papers

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BLEACHED PINE SULPHATE

### Created by Papermakers for Papermakers

Albacel is bleached pine sulphate... the cleanest pulp of its kind available from any source. Chlorine dioxide bleaching gives it outstanding strength and excellent brightness. Albacel is produced at Riegel Carolina's pulp mill at Riegelwood, N. C., with every refinement and control known to modern pulp manufacture.

### Riegel Carolina Pulps

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#### WORLD MARKET PULP DIRECTORY

**Producers SWEDEN** continued

Stroms Bruks Aktiebolag

Stromsbruk

Agent: Bulkley, Dunton Pulp Co.,

Age ....
Inc.
Sulfite, bleached
Dissolving and related grades

Brand: Stroms

Sunds Aktiebolag

Sundsvall Agent: Cellulose Sales Co., Inc.

gent: Cellulose Sales Co., Inc.
Sulfite, unbleached
Brands: Strong Mitscherlich and
Easybleaching qualities; Sund
"I" Prime Mitscherlich; Sund
"Three Crown" Prime Easybleaching; Sund "Two Crown"
Half Prime Easybleaching;
Sund "K" Refined Screenings

Svano Aktiebolag

Svanobruk

Agents: Gottesman & Co., Inc. Elof Hansson, Inc. Perkins-Goodwin Co.

Sulfite, unbleached
Special grades
Standard grades
Brands: White Swan; White
Swan LN; H; S; IIB; LN/H

Svartviks Aktiebolag

Sundsvall

Agent: Cellulose Sales Co., Inc.

Sulfite, bleached
Brands: Svartvik "Select"
"Pulpcose" Dissolving and High
Alpha Acetate Pulps

Svenska Cellulosa Aktiebolaget

Sundsvall
Agent: Cellulose Sales Co., Inc.
See separate listings for:
Essviks Aktiebolag

Essviks Aktiebolag Holmsunds Aktiebolag Kramfors Aktiebolag Munksunds Aktiebolag Ostrands Aktiebolag Skonviks Aktiebolag

Sunds Aktiebolag Svartviks Aktiebolag

Aktiebolag Tegefors Verk Hjerpen

Agent: Price & Pierce, Ltd.

gent: Price & Pierce, Ltd.
Sulfite, bleached
Special grades
Standard grades
Brands: Polar Bear "G" Greaseproof Glassine; Polar Bear
"Strong"; Polar Bear "Standard"; Polar Bear "Soft"; Polar
Bear "Birch" (hardwood)

Uddeholms Aktiebolag

Uddeholm Mills at: Skoghall near Karlstad Agent: Perkins-Goodwin Co.

Sulfite, bleached Dissolving and related grades

Special grades Sulfate, bleached

Dissolving and related grades

Special grades
Special grades
Brands: Alba; Ultra; Raya; Lintra; Cordicel; V-pulp

Utansjo Cellulosa A.B.

Utansjo Agent: Nordicus Inc. (See John B. Lynch & Co., Inc.) Sulfite, unbleached

Special grades

Standard grades
Brands: U Crown S Premium;
U S Prime; U S Prima B Half
Prime; USSA Second Quality;
USSB; USU Refined Screenings

Wifstavarfs Aktiebolag

Wifstavarf

Agents: Gottesman & Co., Inc. Elof Hansson, Inc. Perkins-Goodwin Co.

erkins-Goodwin Co.
Sulfite, unbleached
Special grades
Standard grades
Sulfate, unbleached
Standard grades
Brands: Crown WW 170; Crown
WW 150; Crown WW 130

Wikmanshytte Bruks Aktiebolag

Wikmanshyttan Agent: Gottesman & Co., Inc.

Sulfite, bleached
Special grades
Standard grades
Brands: Thurbo

YUGOSLAVIA

Fabrik Celuloza Prijedor

Sarajevo, Yugoslavia Agent: Gottesman & Co., Inc.

Sulfite, unbleached Standard grades

### Agents and Importers

Acer, McLernon, Inc. Canada Cement Bldg. Montreal Que., Canada

Canada Bathurst Power & Paper Co.,

Ltd.

United States Oxford Paper Co.

Atterbury Brothers, Inc.

110 E. 42nd St., New York 17, N. Y.

Borregaard Co., Inc.

290 Madison Ave., New York 17,

The Bowater Paper Co., Inc. 250 Park Ave., New York 17, N. Y. United States

Norway Borregaard, Aktieselskapet

Sweden Edsvalla Bruk, Aktiebolaget Forshaga Sulfit, Aktiebolag

Kellner-Partington Paper Pulp Co., Ltd.

Bowaters Southern Paper Corp.

Canada

Bowaters Newfoundland Pulp & Paper Mills, Ltd.

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Pulp and Paper Manufacturers

headquarters and sales: New York & Pennsylvania Co., Inc. 230 Park Avenue, New York 17, N. Y. MUrray Hill 6-6090



#### WORLD MARKET PULP DIRECTORY

Agents & Importers

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295 Madison Ave., New York 17, N. Y.

Branch:

American Natl. Bank Bldg., Kala-mazoo, Mich.

United States nited States
Buckeye Cellulose Corp.
Coosa River Newsprint Co.
Crossett Paper Mills
Ketchikan Pulp Co.
Potlatch Forests, Inc.
Puget Sound Pulp & Timber Co.
Riegel Carolina Corp.

anada Irving Pulp & Paper, Ltd. Ontario Paper Co., Ltd. Quebec North Shore Paper Co. St. George Pulp & Paper Co. Ltd.

Soucy, F. F., Inc. Sweden

weden Hissmofors Aktiebolag Iggesunds Bruk, Aktiebolaget Mackmyra Sulfit-Aktiebolag Stroms Bruks Aktiebolag

Bunge Pulp & Paper Co. 45 West 45th St., New York 36, N.Y.

Canadian Wood Pulp Corp.

444 Madison Ave., New York 22, N. Y. Branch: 919 N. Michigan Ave., Chicago 11, Ill. Great Lakes Paper Co., Ltd.

Castle & Overton, Inc.

630 Fifth Avenue, New York 20, N. Y. Branches:

380 High Street, Holyoke, Mass.

Drexel Bldg., Philadelphia, Pa.

Canada Consolidated Paper Sales, Ltd.

United States
Champion Paper & Fibre Co.
Chesapeake Corp. of Virginia

Chesapeake Corp. of Virginia Norway

A/S Hurum Fabriker

A/S Katfos Fabriker

A/S Krogstad Cellulosefabrik

Krogstad, pr. Mjondalen

A/S Totte Cellulosefabrik

A/S Toten Cellulosefabrik

A/S Vestfos Cellulosefabrik

A/S Viul Tresliperi

Germany Zellstofffabrik Waldhof

Cellulose Sales Co., Inc.

250 Park Ave., New York 17, N.Y. Sweden

Bure Aktiebolag Bure Aktiebolag
Svenska Cellulosa Aktiebolaget
Essviks Aktiebolag
Holmsunds Aktiebolag
Kramfors Aktiebolag
Munksunds Aktiebolag
Ostrands Aktiebolag
Skonviks Aktiebolag
Sunds Aktiebolag
Svartviks Aktiebolag
Inited States

United States
Champion Paper & Fibre Co.
Chesapeake Corp. of Virginia

Central National Corp. 100 Park Ave., New York 17, N. Y. (for export) United States

Container Corp. of America
Eastern Corporation
Hudson Pulp & Paper Corp.
St. Marys Kraft Corp.
West Virginia Pulp and Paper

Canada

Halifax Power & Pulp Co., Ltd. James Maclaren Co., Ltd. Mohawk Corp., Ltd. St. Lawrence Corp., Ltd.

Donnacona Sales Co.

Donnacona, Que., Canada Canada Donnacona Paper Co., Ltd.

Gaillet & Hartig Co., Inc.

250 Park Ave., New York 17, N.Y. 461 Market Street, San Francisco, Calif. Calif.
Board of Trade Building, Mont-real, Que., Canada
7 Rue de Naples, Paris 8, France
Bergstrasse 26, Hamburg 1, Ger-

Gilman Paper Co. 630 Fifth Ave., New York 20, N. Y. United States St. Marys Kraft Corp.

Gottesman & Co., Inc.

100 Park Ave., New York 17, N. Y. United States Inited States
Container Corp. of America
Eastern Corporation
Hudson Pulp & Paper Co.
International Paper Co. (S.K.
Div.)
Oxford Paper Co.
Riegel Paper Corp.
St. Marys Kraft Corp.
West Virginia Pulp and Paper
Co.

### Gaillet & Hartig

Co., Inc.

250 Park Avenue New York 17, N.Y.



### WOODPULP MACHINERY PAPER

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Gaillet & Hartig-Pacific, Inc. 461 Market Street San Francisco, Calif.

Gaillet & Hartig (France) 7, Rue de Naples Paris 8e, France



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High Grade Rayon Pulp V-S and Super Rayon V-S High Alfa Pulp for Photo Bleached Sulphite Pulps for Paper Making MG Kraft Paper for Wrapping and Twisting Viscose Rayon Staple Fiber, Dull and Bright Chemicals

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Pulp and Paper Company



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Eastern Sales Office 122 East 42nd St., New York City Telephone OXford 7-2980

Western Sales Office 1003 Builders Bldg., Chicago, Illinois Telephone RAndolph 6-1068

#### WORLD MARKET PULP DIRECTORY

Agents & Importers

Halifax Power & Pulp Co., Ltd. James Maclaren Co., Ltd. Mohawk Corp., Ltd.
St. Lawrence Corp., Ltd.
Sweden
Dynas Aktiebolag

Bynas Aktiebolag
Hogfors Trasliperi, A/B
Iggesunds Bruk Aktiebolaget
Munksjo Aktiebolag
Svano Aktiebolag
Wifstavarfs Aktiebolag
Wikmanshytte Bruks Aktiebolag bolag Yugoslavia

Fabrik Celuloza Prijedor

Great Lakes-Canadian, Inc. 332 S. Michigan Ave., Chicago, Ill.

Great Lakes Paper Co., Ltd.

Hansson, Inc., Elof

711 Third Ave., New York, N.Y. Sweden

Bergvik och Ala A.B. Billeruds A.B. Eds Cellulosafabriks A.B. Hellefors Bruks A.B. Munkedals A.B. Munkedals A.B.
Oskarstrom Sulphite Mills A.B.
Rottneros Bruk A.B.
A.B. Scharins-Soner
A.B. Stjernfors-Stalldalen Svano A.B. Wifstavarfs A.B.

Hershman & Co., Inc., I.

135-153 Minor St., New Haven, Branch

41 E. 42nd St., New York 17, N. Y.

Howard Smith Paper Mills Ltd.

(Pulp Sales Department) 407 McGill Street, Montreal 1, Que.

Alliance Paper Mills Ltd. Canada Paper Co. Donnacona Paper Co., Ltd. Howard Smith Paper Mills, Ltd.

Lyddon & Co. (America) Inc. 250 Park Ave., New York 17, N. Y. (See Parsons & Whittemore)

John B. Lynch & Co., Inc 500 Fifth Ave., New York 36, N. Y. (See Nordicus, Inc.)

Mead Pulp Sales, Inc.

230 Park Ave., New York 17, N.Y. and 20 N. Wacker Dr., Chicago 6,

United States
Brunswick Pulp & Paper Co.
The Mead Corp.

Canada Abitibi Power & Paper Co., Ltd. MacMillan & Bloedel Ltd. St. George Pulp & Paper Co.,

Montmorency Paper Co., Inc.

400 Madison Ave., New York 17, N.Y.

Canada

Gaspesia Sulphite Co., Ltd. (through Northeastern Paper Products Ltd.) Anglo-Canadian Pulp & Paper Mills, Ltd. Anglo-Newfoundland Develop-

ment Co., Ltd.

Dryden Paper Co., Ltd.

Nolan, J. J.

101 Park Avenue, New York Canada The Ontario Paper Co., Ltd.

Nordicus Inc.

500 Fifth Ave., New York 36, N. Y. Utansjo (Sulfite) Cellulosa A.B. (See John B. Lynch & Co., Inc.)

Sweden

Forsse Woodpulp Mill Sandvikens (Kraft) Cellulosa A.B.

Northeastern Paper Products, Ltd.

P.O. Box 1456, Quebec, Que., Canada Sole Sales Agents for: Anglo-Canadian Pulp and Paper Mills Ltd. Anglo-Newfoundland Develop-ment Co., Ltd. Overseas Sales Agents for: Gaspesia Sulphite Co., Ltd.

### CASTLE & OVERTON, Inc.

Rockefeller Center, 630 Fifth Avenue, New York 20, N.Y.

### WOOD PULP

COTTON LINTER PULP WASTE PAPER

### **CELLULOSE SALES COMPANY**

INCORPORATED

250 PARK AVENUE, NEW YORK 17, N.Y.

Telephone: Yukon 6-7870

Cable Address: WOODPULP NEW YORK

Sole representative of the Swedish Cellulose Company, SUNDSVALL, Sweden



# Quality Brands WOOD PULP

BLEACHED SULPHITE

(Paper and Dissolving grades)

STRONG and EASY BLEACHING UNBLEACHED SULPHITE
STRONG UNBLEACHED and BLEACHED KRAFT
(Hardwood and Softwood)

MECHANICAL PULP - MOIST and DRY

#### WORLD MARKET PULP DIRECTORY

#### Agents and Importers

Pagel, Horton & Co., Inc.

347 Madison Ave., New York 17, New York Sweden

Korsnas Aktiebolag Mo & Domsjo Aktiebolag Storviks Sulfit Aktiebolag Hylte Bruks Aktiebolag

The Parsons & Whittemore/Lyddon Organization

250 Park Ave., New York 17, N. Y.

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Representatives:
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Enso-Gutzeit O/Y (Tornator,
Seal, Gutzeit)
Hanvier, Sallulossauhtis Haarlan Selluloosayhtio Jakobstads Cellulosa A/B Joutseno-Pulp O/Y Kajaani O/Y Kaukas Fabrik, A/B Kemi O/Y Kymmene A/B (Kuusankoski) Lohja-Kotka O/Y

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Harmac Bleached Sulphate

production: 220,000 tons

**Bloedel Unbleached Sulphate** 

production: 84,000 tons

In addition to pulp plants, the British Columbia enterprises of MacMillan & Bloedel Limited include extensive logging operations, sawmills, door factories, shingle mills and plywood plants. To round out one of the largest integrated forest products organizations of its kind, a paper mill is now under construction and will begin production of newsprint, coarse papers and paper board in 1957.



MacMILLAN & BLOEDEL LIMITED VANCOUVER/CANADA

"SERVING THE WORLD WITH FOREST PRODUCTS"

### **CELLULOSE OUTLOOK**

#### FROM RAYONIER INCORPORATED TO EXECUTIVES IN PULP AND PAPER INDUSTRIES

What's ahead for cellulose? Reporting to the N.Y. Society of Security Analysts on June 5, 1956, Rayonier's president Clyde B. Morgan said no decline is expected in Rayonier's versatile chemical cellulose business. "Through successful extension of markets to virtually every industrialized free world nation, we have become a truly international trading company with over 40% of total production sold overseas."

Areas where use of cellulose is growing—C.M.C. (carboxymethylcellulose), rug and carpet industry (102,862,000 lbs. in 1955), non-woven fabrics, high strength rayon for belting and other mechanical rubber goods, rubber latex-saturated materials for fields traditionally leather's, new volume for rayon in absorbent cotton.

Rayonier has become a major factor in high-grade paper pulps . . . 1955 sales reached 152,892 tons versus 1954's 65,154.

Morgan stressed that Rayonier's integrated fine paper mill (which lifted sales to 30,331 tons in '55) demonstrates know-how and position in the industry . . . reflects Rayonier optimism for permanent share of the business.

Rayon and related world industries on "threshold of great new surge of growth... now at a point where... one company's staple fiber engages cotton on its own ground of washability—and beats it!" Morgan declared.

New improved rayons required improved forms of cellulose. Rayonier is now ready to provide these improved cellulose qualities in quantity. Another 100,000 ton mill underway at Jesup, Ga. will be on stream in 1957 . . . with new additional tonnages due in from Alaska Pine & Cellulose Limited, Rayonier's Canadian subsidiary with large timber holdings and manufacturing plants. Work now underway in British Columbia to increase its chemical cellulose production indicates Rayonier's determination to further serve world markets.

Per capita consumption of wood products to continue to rise. None can foresee time when wood and its products in some form will not fill vital human needs, Rayonier's chief emphasized.

Silvichemicals—Rayonier's word for the new area of wood-using industries. Rayonier is now commercially producing 3 different silvichemicals. Sales are hitting "respectable levels, trending upwards. We expect these products to attain the same relative importance for us as petrochemicals have for the aggressive oil companies," Morgan said.

RAYONIER

| Cellulose chemistry
| Executive and General Sales Offices: 161 East 42nd St., New York 17

### Dissolving Pulp Markets Still Grow

Industry leaders look to 1958 as year of the big "test" for rayon-acetate, cellophane and such outlets

#### By REX VINCENT

Vice President and Technical Consultant, Bulkley, Dunton Pulp Co.

Written especially for PULP & PAPER'S WORLD REVIEW NUMBER

• In reviewing the year 1955 one cannot help looking back into 1954 or forward into 1957 and 1958. The point of focus of these backward and forward glances is capacity—capacity and the way it has of growing. With such tremendous growth, there naturally are some observers who wonder if it may be growing too fast.

In 1954 three big dissolving pulp mills came into production, and they have run to average operating capacity ever since. Each of the three has made large quantities of paper pulp, but obviously their production was needed as the market suffered nothing, in fact prices of pulp have risen. But also, obviously, the production of paper pulp has been of great assistance in their operation. That is what one sees in the backward glance.

Looking to the future one sees all the new mills scheduled to come into operation late in this year, 1957, and 1958. The total capacity of these new mills, on an annual basis, is close to one million tons and all of the capacity except about 220,000 tons is for paper pulp for the market. Since the dissolving pulp mills now running are making paper pulp, it is logical to conclude that if they increase their viscose business by 220,000 tons in three years, then practically all of the increased production will be aimed at paper grades and more and more paper pulp will be made by the dissolving pulp mills. Now, what's the likelihood of increasing dissolving pulp consumption by 220,000 tons in the next three years?



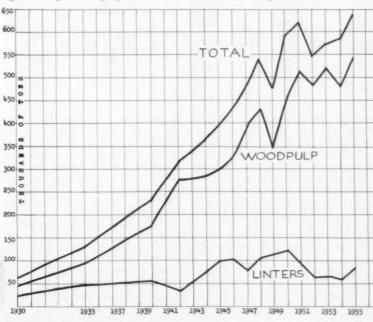


1958 WILL TELL THE TALE . . . In the four-year interval from 1950 to 1954 the production of the dissolving grades moved from 473,000 tons to 775,000 tons, and the 1955 production moved up to 983,000. On the basis of this experience it would seem that an increase of 220,000 in the next three years would be reasonable.

However, the main part of the jump from 1953 to 1954 was the increase in exports of roughly 100,000 tons. From 1954 to 1955 these exports increased by only 40,000 tons which, while respectable, indicates that the big annual increases cannot be expected to go on and on. From now on the increase in exports can only be on a moderate basis of growth, for the big leap to catch up to the economy has already been made by most nations overseas.

One very astute observer of the industry has said that expansions must, by the nature of the business, move in waves or cycles. One must secure his stake of raw material, trees, and he must maintain his position in the business. Thus when one moves, others must also move and this goes on as long as the market will bear it. This testing of the market goes on until it breaks and then things generally settle down for a while. All indications-that is pulp mills, paper machines, and rayon-acetate capacity -point to the year 1958 as the testing year. It looks now as though that is when it will break.

During 1955 no new units of production were added, but those which came in during 1954 reached their design levels for the whole year. It is not likely that any great increase will occur during 1956 except where the new mills ramble into a groove.



#### **Woodpulp Far Ahead of Linters**

This chart shows how woodpulp has far outstripped cotton linters pulp as a raw material for United States rayon-acetate products producers—which includes all kinds of products from textiles and rugs to tire cord. A record-breaking 546,900 tons of woodpulp was consumed in 1955, compared with only 87,600 tons of cotton linters pulp. As the chart shows, the two together brought total pulp consumption for rayon-acetate to a record 634,500 tons in 1955. (PULP & PAPER chart based on Textile Organon data.)

The current dissolving pulp capacity of North American producers is now very close to 1,900,000 tons. By 1957 it will go up to about 1,960,000 tons, and during 1958 annual capacity will move up to almost 2,200,000 tons. This capacity is owned and operated by the following concerns:

-	American	Dissolving	Puln	Cos.
2101111	Zimeriemi	Dissorring		mber

Company	of mill
Rayonier Inc.	7
Weyerhaeuser Timber Co.	1
Brown Co.	1
International Paper Co.	1
Buckeye Cellulose Corp.	1
Ketchikan Pulp Co.	1
Fraser Companies Ltd.	1
Canadian Internatl. Paper Co.	. 3
Columbia Cellulose Co. Ltd.	1

In the above listing the two mills of the old Alaska Pine & Cellulose Co. are shown under Rayonier. With expansions now going on the capacity of these mills of Rayonier will approach one million tons per year, and not only makes them the primary producer but gives them almost half the capacity.

#### A WELCOME RECOVERY

The year just past saw a welcome recovery by the rayon-acetate industry, and this pushed the production of these pulps to a record of 980,000 tons of which 207,100 were exported. These figures are for the U.S. alone, and a production increase of 17% over the previous year with exports up 28% certainly demonstrates a dynamic industry. Imports were down about 7% amounting to 215,000 tons, all but 500 of which came from Canada. Thus the decline in imports was mainly Canadian and perhaps this trend will continue in the same way it has for imported paper pulps.

In the midst of this rising curve for the United States, as demonstrated in Table I, the Canadian figures show a decline in both production and overseas exports. The production in 1955 was down to 420,075 tons from 455,585 the year before, and exports declined from 145,813 to 134,000 tons.

One can suppose several things from this, but one year does not establish a trend. Perhaps the increasing use of sulfate pulps has something to do with it as there is none of this type produced in Canada, and further there is no expansion underway in Canada except that at the Alaska Pine mill of Rayonier. It is odd that the Canadian producers should lose ground in both the U.S. and the overseas markets in a year when U.S. mills showed gains. When the figures are placed on a North American basis, as in Table III, they get very big and show the peaks to which 1955 rose in this field.

TABLE I

### U. S. PURIFIED WOOD CELLULOSE (In Short Tons)

Year	Production	Imports	Exports	Net Available
1938	171,650	65,220	72.800	164,070
1940	288,500	113,945	115,204	287,241
1943	369,731	129,380	22,884	476,226
1944	429,545	132,675	10,729	551,491
1945	355,820	146,030	13,030	488,820
1946	295,680	198,540	9,300	484,920
1947	408,460	248,070	14.570	641.960
1948	421,924	239,842	14,665	647,101
1949	371,422	154,348	3,857	521,913
1950	473,210	238,856	27,284	684,781
1951	615,776	230.038	32,944	812,920
1952	705,828	223,340	61,850	867,315
1953	678,180	255,781	66,513	867,448
1954	775,003	230,384	161,916	843,471
1955	980,875	215,100	207,100	988,875
Source:	U.S.P.P.A.			

TABLE II

### U. S. PURIFIED WOODPULP IMPORTS (By country of origin—Short tons)

Year	Canada	Sweden	Finland	Norway	Others	Total
1948	224,942	9,080	3,718	2,101		239.841
1949	149,801	3,888				154,348
1950	229,102	2,177	158	1.021	1.398	238,856
1951	225,836	3,683		475	94	230,088
1952	220,010	2,240		307	770	223,337
1953	254,232	712		837		255,781
1954	228,143	1.084	11	1.146		230,384
1955	214,525		246	262		215,033

#### TABLE III

### NORTH AMERICAN PURIFIED WOODPULP (Short tons)

Year	Production	Imports	Exports	Net Available
1947	707,000	23,700	56,000	674.700
1948	754,000	14,900	80,400	688,500
1949	620,930	4,550	83,150	542.330
1950	796,312	9,745	83,149	722,908
1951	1,014,240	4,152	151,029	867,363
1952	1,129,400	3,317	181,471	951,245
1953	1,132,338	1,549	214,658	919,229
1954	1,230,588	2,241	307,729	925,100
1955	1,400,950	508	341,080	1,060,378

PRICES STEADY . . . Prices, which are an indication of a market's condition and sometimes act like a thermometer, were steady for another year, which stretches the period of little change to nearly five years. During the year one producer made slight increases in his price structure of from \$3 to \$5 and there are now quoted several different types of acetate pulps but basically the prices are as follows on the recognized standard grades:

Grade	Price
Std. Cellophane	\$185
Std. Filament Yarn	\$185
High Tenacity Yarn	\$195
Std. Acetate	\$225

A BIG RECOVERY . . . The rayon/acetate business really bounced back in 1955. The total production was 630,350 tons, just a little bit below the all-time record of 647,100 tons established in 1951. This total

is an increase of 16% over 1954. All segments of the industry showed increases compared to 1954, except acetate staple and tow which continued its decline by falling 14%. High tenacity yarn was up 27½%, intermediate tenacity yarn up 19%, acetate yarn 16½%, and rayon staple and tow 8½%.

These are exactly opposite of the 1954-'53 comparisons when everything was down. In 1954 rayon staple and tow was the active segment, since it was up over 1953 while everything else was down. Now it shows the least upward movement with the real swing showing in high tenacity yarn.

This was probably due to the big year in automobiles and consequently, tires, where the battle with nylon still goes on. It is estimated that nylon now has about 10% of the tire yarn market, but so far all new pleasure cars are still equipped with rayon yarn tires. The nylon cord is reported to be

### PRICE & PIERCE LIMITED

### WOOD PULP AGENTS

LONDON NEW YORK MONTREAL

50% more efficient than rayon cord, and it has been forecast that nylon will have 50% of this market in five years, figured on a rayon equivalent basis. These shifts are a continuing headache to producers who must swing with the tide, changing equipment and production accordingly. The noncellulosic fiber competition continues, and the production of these fibers is still increasing rapidly. They jumped 33% over 1954 and their production now amounts to 228,750 tons. of which 39,000 tons was glass fiber.

FILTERS REQUIRE PLENTY OF PULP . . . Many new fibers and yarns were introduced last year offering new strengths and other qualities, but only one new use has reached significant proportions. Acetate tow has found a use in cigaret filters where its consumption amounted to 11,000 tons in 1955 as against about 1,500 tons in 1953. Think of it! Eleven thousand tons of filtering media for cigarets. Cellulose in some form appears in all filters but one, but acetate is by far the leader. Such a volatile use, however, can drop as fast as it rose, but people in the business expect filter cigarets to increase to as much as 35% of the total. Currently they amount to about 20% of the total.

The capacity survey made by "Tex-tile Organon" is always interesting, and it usually reflects some aspect of the future. In total capacity it is expected to increase from 827,500 tons in July 1956 to 857,500 tons in March 1957, and no increase up to October 1957. During this period the indications are that high tenacity will increase, regular will decrease, acetate yarn shows no change, rayon staple will increase, and acetate staple shows no change.

Table IV shows the production of rayon acetate by process and type over recent years.

These increases are, of course, reflected in the consumption of cellulose as shown in Table V. The increased use of cotton linters for the high tenacity yarns shows in the proportion of cotton linter pulp use. It increased from 11% to 14% and was the largest use of cotton since 1951.

#### EXPECT EXPORTS TO BOOM . .

The importance of the export market to the dissolving grades cannot be overemphasized. It is obvious that the producers of these pulps who are expanding their mills or building new ones expect a booming market overseas. This market will be for the rayon-acetate grades, and the difference in quality between North American pulps as opposed to Scandinavian grades is making itself felt.

One large producer in Sweden has

TARIF IV

#### **U. S. Rayon-Acetate Production by Types** (Short Tons)

Year	Viscose & Cupra- ammonium Filament	Acetate Filament	Viscose Staple	Acetate Staple	Total
1949	272,150	127,500	64,900	32,350	496,900
1950	318,500	163,500	94,500	58,500	630,000
1951	329,050	150,050	103,650	64,350	647,100
1952	297,250	117,150	105,900	47,600	567,900
1953	328,800	114,650	109,550	45,450	598,450
1954	254,450	98,950	155,750	33,700	542,850
1955	317,500	115,050	168,900	28,900	630,350
		TABLE	V		
Veen	Total Rayon-	Woodpulp	ent.	Linter Pulp	ed

		IMPLE			
Year	Total Rayon- Acetate Pulp	Woodpulp Consumed	%	Linter Pulp Consumed	%
1930	63,850	45,000	62	27,000	38
1935	131,077	86,000	63	51,000	37
1940	235,585	178,000	75	60,000	25
1942	316,308	280,500	88	39,500	12
1944	361,977	285,000	78	82,000	22
1945	396,000	297,000	74	103,000	26
1946	427,000	323,000	75	105,000	25
1947	478,000	397,000	83	81,000	17
1948	539,500	435,000	81	104,500	19
1949	476,600	348,700	73	127,900	27
1950	590,600	456,200	77	134,400	23
1951	616,300	515,500	84	100.800	16
1952	549,500	484,700	88	64.800	12
1953	589,100	522,000	89	67,100	11
1954	537,800	477,300	89	60,500	11
1955	634,500	546,900	86	87,600	14

Source: Textile Organon

said that if any changes in capacity or process are made in their mill, it will have the effect of decreasing dissolving grades and increasing paper grades. Scandinavian wood is different in composition, requiring the expenditure of more energy and chemicals to obtain a pulp equal to North American pulp, and with wood costs rising, competition becomes difficult. It is not likely that there will be any increase in the production of these grades in Scandinavia, which leaves the increasing demand to North American suppliers.

Last year 21% of U.S. production and 24% of North American production was exported. This proportion is about the same as 1954, with the actual tonnage increase being 40,000 tons. If the trends in U.S. consumption of these pulps continues and the amounts of paper pulp manufactured remain about the same, exports will have to be pushed up by nearly 200,-000 tons by 1959. To do this would require an overseas capacity increase for rayon-acetate of about the same amount.

WORLD PRODUCTION . . . About 75% of rayon-acetate is produced by the rest of the world, and in 1954 this amounted to about 1,711,000 tons. In 1955 it increased to about 1,870,000 tons or 9%. The U.S. production increased 16%. Thus if the rest of the world's production increases by 15% in the next three years and North America gets her share of the increase, the job can be done. From 1951 to 1954 the production of the rest of the world increased by 25%, so it would seem reasonable and possible for it to go only 15% in the next three years. Upon this hangs the future of this business.

CELLOPHANE . . . The other viscose pulp consumer, cellophane, is having just as much trouble with competitors as the textile consumer. What with Pliofilm, polyethylene, Saran-Wrap, acetate film, and even aluminum foil, it is a struggle to hold on to the food packaging business

A very wonderful coffee cake now comes packed in an aluminum foil dish with a paperboard cover in which there is a large acetate film inset. Pre-packed vegetables use some of the other transparent films because of their toughness and lack of brittleness on seams and corners. On the other hand luxury crackers, cocktail snacks and such now appear in a cellophane bag inside a box.

Cellophane still is dominant in tobacco products, medicinals, and cosmetics. Some day just look around your kitchen, your office, even your bedroom and notice the cellophane you peel off some product. Notice the candy and chewing gum display at the cigaret counter in your building or hotel. This film not only protects but enhances the appearance of a product, and where the choice is up to you, these are of utmost importance in selling. How many times do you use Scotch tape? It is a transparent film treated with a pressure-sensitive



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for the manufacture of Cellophane, Rayon and Products of Paper.



RESTIGOUCHE COMPANY, LTD. Campbellton, N. B., Canada

adhesive

During 1955 there were no significant changes in cellophane productive capacity. The new Olin-Mathieson plant is scheduled for operation this year, and until that plant comes in, the top capacity of the industry is believed to be about 180,000 tons of pulp consumption. Since there are no statistics published on this industry, one must rely on the "well-informed guess." It is estimated that approximately 173,000 tons of woodpulp were consumed by this film. There are some expansions under way currently that will add to the capacity. American Viscose is expanding its Sylvania division, and it is believed that Olin-Mathieson's plant will be of a greater capacity than announced some time ago.

A NEWCOMER—MYLAR FILM... Before leaving the transparent films, something must be said about a new competitor growing up rapidly: Mylar film. Essentially this is the same molecule from which Dacron is made, and it possesses great strength plus its ability to block moisture vapor transfer completely. Cellophane must be treated with nitrocellulose to accomplish this, and even then it is not completely satisfactory. Watch your cigaret package, for just as soon as sealing is perfected, it is a good bet that Mylar will show up there.

OTHER PRODUCTS . . . The dissolving grades of woodpulp not only go into rayon-acetate and cellophane but into innumerable other products ranging from saturating papers ito sanitary napkins, from reducing aids to detergent aids, from photographic film to plastics, and from vulcanized fiber to sponges.

This is the area of ignorance as far as statistics are concerned. Some of these products are reported as organic chemicals and some as just paper. The

#### TABLE VI

#### Cellulose Uses—1955 (Thousands of short tons)

Net available production for North	
America	1,060
Increase in producers' & consum-	
ers' inventories	21
Total available	1,039
Consumed in Canada	63
In-transit shipments	20
Balance available for U.S.	956
Rayon-acetate	547
Cellophane	173
Balance for other uses	236
Cellulose plastics including nitro-	
cellulose	75
Misc. viscose (sponges, caps, bands,	
sausage casings, filters)	15
CMC	7
Other derivatives	9
Sanitary napkins and absorbents	20
Vulcanized fibre and floc	14
All grades of paper	96



dissolving and paper grades shipped in bales or rolls

COLUMBIA CELLULOSE
PRIME BLEACHED SULPHITE

COLUMBIA CELLULOSE HIGH ALPHA SULPHITE

COLUMBIA CELLULOSE

COMPANY LIMITED PRINCE RUPERT, B.C.

Pulp Mill — Prince Rupert, B.C.
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plastic figures embrace some of them, but these include the fillers and plasticizers added and in some cases exclude film. In many cases these materials form over half of the weight of the plastic.

Regarded as plastics are cellulose nitrate, cellulose acetate, cellulose butyrate, ethyl and methyl cellulose. In general cellulose plastics seem to have had their hey-day and are in a decline. The competitive materials such as polyethylene, polystyrene, and the vinyls have taken over in many instances where the cellulosics once ruled. Carboxymethyl cellulose is still growing, due mainly to the popularity of synthetic detergents. Production statistics of CMC are reported as 8,350 tons in 1951; 7,050 in '52; 10,-835 tons in '53, and 11,090 tons in '54, the latest figures available.

#### CELLULOSE PLASTICS **U. S. Production** (in short tons)

Year	Acetate	Nitrate	Other
1951	48,708	3,805	5.972
1952	42,724	3,010	3,326
1953	57,285	3,800	3,136
1954	56,190	2,633	2,780
1955	66,950	2,434	2,934

In the next table are statistics taken from tariff commission reports for the cellulose plastics. The acetate figure includes sheets, rods, tubes, molding powder and extruded material. It is believed that it also includes the mixed esters, butyrate, propionate, and the combination. There are no good statistics for the amount of nitrocellulose which is used in lacquers and furnishes of various kinds, in coating for cellophane, and the various photographic finishes. There is no indication whether or not photographic film is included in the cellulose acetate figures, but it is believed that it is. These statistics do not include any nitrocellulose being converted into smokeless powder or ex-

Table VI is an attempt to strike a balance on the various consuming segments of this type of woodpulp. Since the end-uses range all the way from textiles to organic chemicals and since so many different industries are involved, the figures presented are a mixture of genuine statistics and guesses. Wherever possible efforts have been made to support the guesses by other opinion and as much subordinate information as is avail-

#### Fiber Plants That Use Woodpulp Versus Those That Don't

· As the woodpulp world knows, wood cellulose is a major raw material for all kinds of acetate and viscose fiber products. Textile Organon, published by Textile Economics Bureau, Inc., annually publishes lists of the United States manmade fiber producers, including both the acetate-viscose group and the non-cellulosic group.

Because anyone in the woodpulp marketing business has either direct or indirect interests in these lists, we give them here in abridged form.

Many new man-made fibers have been developed, which do not use wood fiber, and the types are grouped in the non-cellulosic section.

This noncellulosic group is growing. It is significant because these are hardfighting competitors, on many fronts, for the same markets that woodpulp reaches in the form of acetate and rayon products which range all the way from textiles and carpets and drapes to shoe inner soles and tire cord or tire cord fabric. There are now 46 non-cellulosic man-made fiber plants in the U.S.A. compared with 30 rayon-acetate plants.

#### **U.S.A. Rayon-Acetate Producers:**

American Enka Corp. (rayon yarn, staple 206 Madison Ave., New York 16, N. Y. Plants: Enka, N. C. Lowland, Tenn. (expanding)

American Viscose Corp. (rayon & acetate yarn & rayon staple & tow) 1617 Pennsyl. Blvd., Philadelphia 3, Pa.

Plants: Lewistown, Pa.

Meadville, Pa.
Front Royal, Va.
Roanoke, Va.
Nitro, W. Va.
Parkersburg, W. Va.

Beaunit Mills, Inc., American Bemberg and Coosa Pines Divisions (rayon yarn & staple)

261 Fifth Ave., New York 16, N. Y. Plants: Childersburg, Ala. Elizabethton, Tenn.

Celanese Corp. of America (rayon & acetate yarn, staple & tow) 180 Madison Ave., New York 16, N. Y.

Plants: Rome, Ga. Cumberland (Amcelle), Md. Rock Hill (Celriver), S. C. Narrows (Celco), Va.

Courtaulds (Alabama) Inc. staple) 600 Fifth Ave., New York 20, N. Y. Plant: LeMoyne, Mobile County, Ala. E. I. du Pont de Nemours & Co., Inc. (rayon & acetate yarn)
Wilmington 98, Del.
Plants: Old Hickory, Tenn.
Richmond (Ampthill), Va.

Waynesboro, Va

Fair Haven Mills, Inc. (rayon horsehair & straw)

Plant: Fair Haven, Vt.

Hartford Rayon Co., Div. of Bigelow-Sanford Carpet Co., Inc. (rayon staple) 140 Madison Ave., New York 16, N. Y. Plant: Rocky Hill, Conn.

Industrial Rayon Corp. (rayon yarn) Union Commerce Bldg., Cleveland 1, O. Plants: Cleveland, O.

Painesville, O. Covington, Va.

Mohawk Carpet Mills, Inc., Delaware Rayon and New Bedford Rayon Divi-

sions (rayon yarn & staple)
P. O. Box 908, New Bedford, Mass.
Plants: New Castle, Del.
New Bedford, Mass.

North American Rayon Corp., Subsidiary of Beaunit Mills, Inc. (rayon yarn) 261 Fifth Ave., New York 16, N. Y. Plant: Utica, N. Y. Tennessee Eastman Co., Div. of Eastman

Kodak Co. (acetate yarn, staple & tow) Kingsport, Tenn. Plant: Kingsport, Tenn.

#### U.S.A. Non-Cellulosic Fiber Producers:

ACRYLIC FIBER (Plants):

American Cyanamid Co., Stamford, Conn. (pilot plant)
Carbide and Carbon Chemicals Co.,
South Charleston, W. Va.
Chemstrand Corp. (owned by American Viscose and Monsanto Chemical), Decatur, Ala.

E. I. du Pont de Nemours & Co., Camden, S. C.

DINITRILE FIBER (Plants): B. F. Goodrich Chemical Co., Avon Lake, O. (pilot plant)

NYLON—POLYAMIDE FIBER (Plants):

Allied Chemical & Dye Corp., National Aniline Div., Chesterfield, Va. American Enka Corp., Enka, N. C. Chemstrand Corp., Pensacola, Fla. Dawbarn Brothers, Inc., Waynesboro, Va. E. I. du Pont de Nemours & Co., Sea-ford, Del., Chattanooga, Tenn., Martins-ville, Va. A. L. Erlanger Co., Inc., Scranton, Pa. Industrial Rayon Corp., Covington, Va. National Plastic Products Co., Odenton, Md.

Mo.
North American Rayon Corp., Subsidiary
of Beaunit Mills, Inc., Elizabethton,
Tenn. (pilot plant)
Polymers, Inc., Middlebury, Vt.

POLYESTER FIBER (Plant): E. I. du Pont de Nemours & Co., Kings-

POLYETHYLENE FIBER (Plants):

Dawbarn Brothers, Inc., Waynesboro, Va. National Plastic Products Co., Odenton,

1956 Review Number-PULP & PAPER

POLYVINYL ACETATE FIBER

American Viscose Corp., Meadville, Pa.

PROTEIN FIBER (Plants):

Rubberset Co., Plastic Products Div., Salisbury, Md. Virginia-Carolina Chemical Corp., Taftville, Conn.

SARAN (Polyvinylidene chloride fiber) (Plants):

Saran as a raw material is made by Plastics Dept. of Dow Chemical Co., Midland, Mich. This company currently licenses following companies to extrude saran yarns, monofilaments, staple, and/or tow for textile purposes: Bolta Products, Div. of General Tire &

Botta Froducts, Div. of General Fife & Rubber Co., Lawrence, Mass. Dawbarn Brothers, Inc., Waynesboro, Va. Firestone Plastics Co., Div. of Firestone Tire, Pottstown, Pa. Lus-Trus Corp., Ypsilanti, Mich. National Plastic Products Co., Odenton,

Md.
Oriented Plastics, Inc. Pembroke, N. H.
Saran Yarns Co. (Owned by Dow Chemical and National Plastic Products),
Odenton, Md.
The Computational Plastic Products of the Products of the Computational Plastic Plants of the Products of the Plants of the Southern Lus-Trus Corp., Jacksonville,

TETRAFLUOROETHYLENE FIBER

E. I. du Pont de Nemours & Co., Inc., Richmond, Va.

TEXTILE GLASS FIBER (Plants):

Ferro Corp., Fiber Glass Div., Nashville,

Gustin-Bacon Mfg. Co., Kansas City, L-O-F Glass Fibers Co., Burbank, Cal., Defiance & Waterville, O., Parkersburg,

Modigliani Glass Fibers, Inc., Lancaster,

Owens-Corning Fiberglas Corp., Huntington, Pa., Ashton, R. I., Anderson, S. C. Pittsburgh Plate Glass Co., Shelbyville,

U. S. Glass Fiber Co., Manchester, Conn.

OTHER FIBERS (Plant): Polymers, Inc., Middlebury, Vt.

#### Acetate-Rayon World Mark: Vs. Other New Fibers in U. S.

World rayon-acetate production was five billion lbs. in 1955, according to Textile Organon. This was a new record, 11% over 1954. Of this total 25% was produced in the U.S.A. By far the most of this is made with dissolving woodpulp.

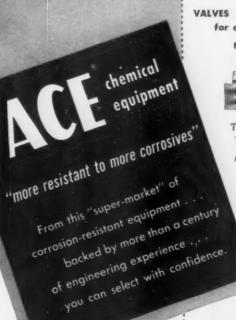
Man-made fiber production in the U.S.A. totaled 1,718,200,000 lbs. in 1955, another new record. Rayon yarn output increased 25%. Acetate yarn was up 16%%. Rayon staple increased 8%%. But acetate staple was off 14%. All of these use mostly wood-

The competitors of these woodpulp products-the noncellulosic and textile glass fiber production-increased 33%, more than acetate-rayon.

Of all man-made fibers, acetaterayon totaled 1,260,700,000 lbs. The non-cellulosic (nylon, saran, acrylic, etc.) climbed to 457,500,000 lbs.

#### TOUGH ACE-ITE PLASTIC PIPE

General-purpose moderately priced rubber-plastic pipe handles most common chemicals to 170 deg. F. . . . except few strong acids and organic solvents. Tough, odorless, tasteless. Rigid pipe 1/2" to 6". Bulletin 80.



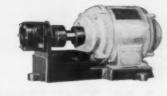
for all-plastic piping systems





Trouble-free plastic diaphragm valves . . . choice of general-purpose ACE-ITE, ACE PARIAN (polyethylene) or ACE SARAN. Handles most corrosive

chemicals and food ingredients. Sizes 1/2" to 2", 50 psi. at 77 deg. F. Bulletins 80 and 351.



ACE-HIDE ACID PAIL

#### Practically indestructible

Its made of a new rubber-plastic material that's tough, resilient, suitable for handling most acids and alkalis. 3-gal. size. Easy-pour, drip-proof spout. Also 1-qt. and 2-qt. dippers, hard rubber bottles, etc. Write for name of nearest dealer.

MIGHTY MIDGET

for pumping acids

Jabsco neoprene-impeller pump made of Ace hard rubber out-lasts, out-pumps anything in its pressure, size and price class. Capacity from 15 gpm. at 22 ft. head to 5 gpm. at 72 ft. head. Ask for free Bulletin 97.

**ACE** rubber and plastic products

MERICAN HARD RUBBER COMPANY 93 WORTH STREET . NEW YORK 13, N. Y.

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### J-M THERMOBESTOS® the heat insulation designed for outdoor process industries

Here's proof that rugged physical strength and high insulating efficiency can be combined in one material. J-M Thermobestos is strong and rigid, yet light enough for easy handling and fast application. It is not damaged by prolonged wetting. Its hard composition resists crushing and will withstand unusual service abuse. The low conductivity compares favorably with other accepted industrial insulations.

This unique combination of properties means excellent temperature control and minimum maintenance cost for oil refineries, chemical processing plants and other plants with outdoor vessels and hot piping.

Made from calcium hydrosilicate,

Made from calcium hydrosilicate, Thermobestos is molded to size for proper fit. Its high strength makes it particularly adaptable for time-saving shop prefabrication of fittings and bends. Furnished in large sections, Thermobestos is easy to apply. It reduces the number of joints. In pipe insulation form, it comes in a complete selection of sizes up to 24" x 3" half-sections. Also available in 6" x 36" and 12" x 36" blocks in a full range of thicknesses. For further information write to Johns-Manville, Box 60, New York 16, N.Y. In Canada, Port Credit, Ontario.



Johns-Manville fintin INSULATION



# Uniformity in your board starts with uniformity in our starch

When buying high quality paper board, your customers appreciate consistently uniform basic materials. Your best guarantee of a board with uniformity and durable printing surface from run to run is Eagle brand corn starch. In addition, you will be able to give your customers an improved finish and better surface that resists scuffing.

Eagle brand corn starch is an acid-converted starch known for its ease of cooking, high fluidity and low viscosity. Here is your answer to uniform quality board at competitive prices—the right way to repeat sales.

Ask the man from Corn Products, he can help with product information and engineering assistance. Whatever your paper-making probblem, he will be able to supply you with the technical assistance you require.





Corn Products makes these famous brands of starches and gums for the paper industry:

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EXCELLO AND GLOBE DEXTRINES · LAM-O-DEX GUMS

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### TITANOX

One reason for the public acceptance of cellulose facial tissues is their "clinical" whiteness. You can heighten the brightness, whiteness and opacity of such tissues by adding TITANOX-A-WD at the beater . . . yet softness of the fibers can be maintained.

For lightweight stocks, publication paper, glassine, TITANOX titanium dioxide is your No. 1 choice in white pigments. Titanium Pigment Corporation (subsidiary of National Lead Company), 111 Broadway, New York 6, N. Y.; Atlanta 5; Boston 6; Chicago 3; Cleveland 15; Houston 2; Los Angeles 22; Philadelphia 3; Pittsburgh 12; Portland 14, Ore.; San Francisco 7. In Canada: Canadian Titanium Pigments Limited, Montreal 2; Toronto 1.



130



WORLD-WIDE

# PULPSTONE SERVICE

In the United States







J. H. (Jim) Perry, Pulpstone Sales Engineer, is at the service of the pulp and paper industry throughout the United States to prescribe the right pulpstones to meet their exact requirements. Walter Beth, Pulpstone Engineer, is constantly working on improvements in Norton pulpstone design to even better meet and anticipate the needs of the industry. Ralph A. Bohlin is in the Worcester Sales Office to assure the proper handling of your pulpstone orders.

In Canada







W. H. (Bill) Copeland, Pulpstone Technician at Norton Company of Canada Ltd., serves the mills from British Columbia to Newfoundland in the selection of the correct stone specifications to meet their needs. D. B. Annan, Plant Engineer at Hamilton, is in charge of pulpstone development and manufacture in Canada. Miss Lillian Ellis of the Sales Department has charge of order service for the Canadian pulp and paper industry.

In Europe





Gustav Sundt of the export division, Norton Behr-Manning Overseas Inc., is located at Oslo and is in charge of engineering and sales for the many users of Norton pulpstones in the Scandinavian countries. J. S. Michel Biscayart with headquarters in Paris serves pulpstone users throughout central and southern Europe.

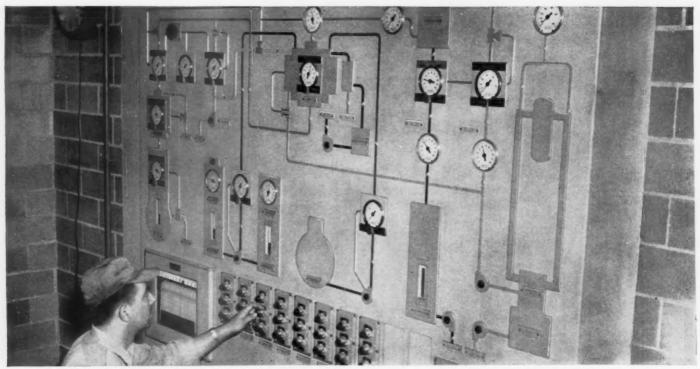


PULPSTONES

NORTON COMPANY, Worcester, Mass.

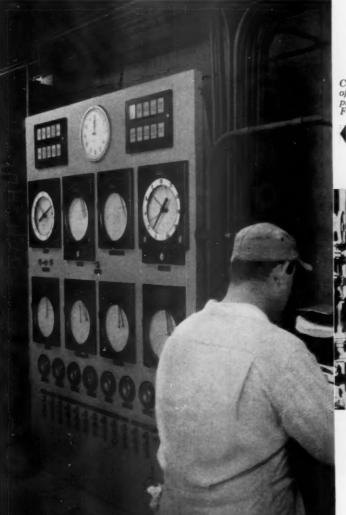
NES NORTON COMPANY OF CANADA, LTD., Hamilton, Ont.

EXPORT: NORTON BEHR-MANNING OVERSEAS INC., Worcester, Mass.



Graphic control panel with compact process diagram is set in wall to save valuable space in ClO, installation at West Virginia Pulp & Paper Co., Covington, Va.

### Savings begin

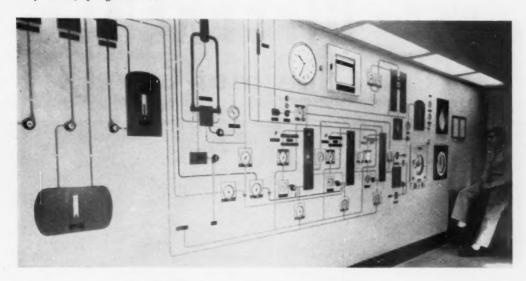


Conventional panel centralizes control of remotely located ClO<sub>2</sub> generating plant at Camp Manufacturing Co., Franklin, Va.



Conventional control cubicle designed for installation at process equipment location in ClO<sub>2</sub> installation at International Paper Co., Spring Hill, La.

Large process diagram on graphic control panel provides visibility of overall process conditions in ClO<sub>2</sub> installation at P.H. Glatfelter Co., Spring Grove. Pa.



# in the planning stage of CIO<sub>2</sub> INSTRUMENTATION

### Honeywell control systems are custom-fitted to your process to give maximum efficiency at lowest cost

No need to waste your engineering time in planning instrumentation for the two major ClO<sub>1</sub> processes. Honeywell supplies standard drawings and quotations for basic graphic and conventional control systems for each process. Of course, quotations can be modified to suit your needs.

And you can get these basic control systems custom-fitted to your space requirements . . . adapt instrumentation to your construction plans, rather than build around your controls.

Regardless of what ClO, process you choose, Honeywell can point to an actual control installation—an installation that's proved itself in terms of efficiency, product quality, operating costs.

Honeywell supplies the *complete* ClO<sub>1</sub> control system. Instruments and auxiliary equipment are premounted, prepiped and prewired with readily accessible field connections. Service is available before, during, and after installation.

Whether you plan to buy your instrumentation direct or through a consultant, get the complete control story from your local Honeywell sales engineer. He's as near as your phone. MINNEAPOLIS-HONEYWELL REGULATOR Co., Industrial Division, Wayne and Windrim Aves., Phila. 44, Pa.—in Canada, Toronto 17, Ontario.

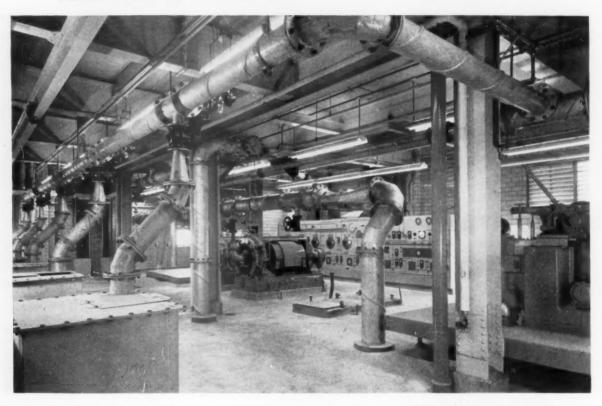


Honeywell
BROWN INSTRUMENTS

First in Controls

## It's the DIFFERENCE

You Can't See that Counts!



Photo, courtesy Hammermill Paper Co.

It's easy to distinguish Naylor pipe from other lightweight pipe by its familiar spiral. But, what you can't see is the extra performance built into this lockseamed, spiralwelded pipe.

In paper mill service, Naylor pipe gives you extra strength and safety because of its exclusive spiral truss which acts as a continuous expansion joint to absorb shock loads, stresses and strains.

Naylor pipe sizes range from 4" to 30" in diameter with all types of fittings and connections. Both pipe and fittings are furnished in steel, alloys and stainless steel.

Write for Bulletins No. 507 and No. 525.

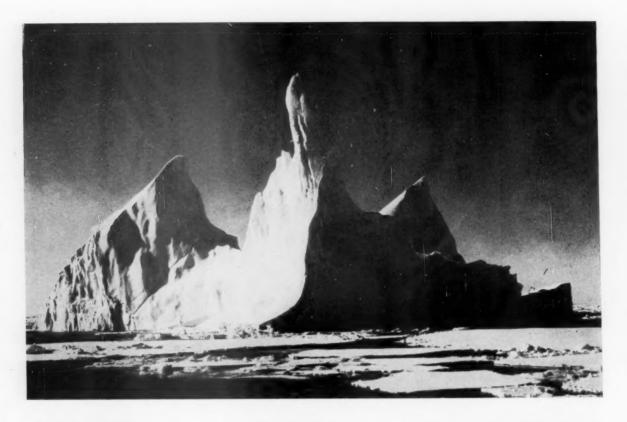


Eastern U. S. and Foreign Sales Office: 350 Madison Avenue, New York 17, New York





INORGANIC CHEMICALS: Ammonia - Bicarbonate of Soda - Carbon Dioxide - Caustic Potash - Caustic Soda - Chlorine - Hydrazine and Derivatives
Hyprochlorite Products - Muriatic Acid - Nitrate of Soda - Nitric Acid - Soda Ash - Sodium Chlorite Products - Sulphare of Alumina - Sulphur (Processed)
Sulphuric Acid - Organic Chemicals: Ethylene Oxide-Ethylene Glycols-Polyethylene Glycols-Glycol Ether Solvents-Ethylene Dichloroethylether
Formaldehyde-Methanol-Sodium Methylate-Hexamine-Ethylene Diamine-Polyamines-Ethanolamines-Trichlorobenzane-Polychlorobenzane-Trichlorophenol



### "ICEBERG" and "ICECAP K" PIGMENTS

### DOLLAR SAVINGS BY USING ANHYDROUS ALUMINUM SILICATES (Kaolin Type Clay) REPLACING TiO.

By using approximately three pounds of ICEBERG or ICECAP K pigment to replace one pound of TiO<sub>2</sub>, the following saving can be realized. It is important to keep the ash content the same by cutting back on other fillers such as coating clay or filler clay when increasing the amount of brightening filler.

### Saving Per Pound TiO<sub>2</sub> Eliminated Approximate Delivered Cost Per Pound

Burgess "Icecap K" Pigment	TiO <sub>2</sub>	
	co	ST
ITEM	"Iceberg"	"Icecap K"
Burgess Product (3 lbs.)	.096	.120
Coating Clay (eliminate 2 lbs.)	.030	.030
Total Cost:	.126	.150
TiO <sub>2</sub> (1 lb. eliminated)	.240	.240
SAVING	.114	.090

Low Cost

#### **Brightening Agents**

Replace costly white pigments in-

- · Bleached manila lined board
- · White patent coated board
- Ground wood and/or sulphite furnishings

Write for working samples and prices

### Burgess Pigment COMPANY

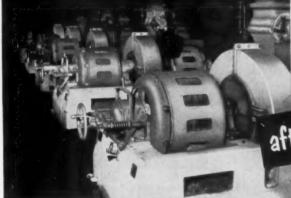
Mines and Plants: Sandersville, Georgia

EXECUTIVE SALES OFFICES: P. O. BOX 145, SANDERSVILLE, GA. West Coast: L. H. Butcher Co., San Francisco & Los Angeles, Cal. Warehouses: Jersey City & Trenton, N. J.; Saylesville, R. I.

- HYDROUS AND ANHY-DROUS ALUMINUM SILI-CATE PIGMENTS
- KAOLIN CLAYS

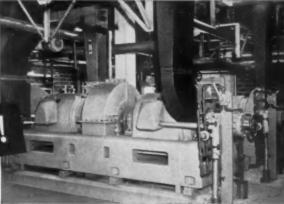
# The Rapid Trend Toward Bauer Double-Disc Refiners for Semi-Chemical Pulp





after another...

after another!



To get the best job of fiberization, high speed is right. And a Bauer Double Revolving Disc Refiner has it—2400 differential rpm between the rotating heads. Bauer double-disc refiners have no stationary plate to cut fibers. A Bauer will produce high quality semi-chemical pulp with less chop, better testing qualities, and better formation on the machine.

We're not prejudiced toward double-disc either, because we make the best and most modern pressure and free discharge single-disc mills offered to the industry.

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INSPECTION, sheet-by-sheet, is the final step in paper making at Mead. Mead's products range from glossy coated papers to book papers, liner-board, and corrugated medium for boxes.



calender rolls give coated paper its glossy surface—with the help of coating clays for which Huber is one of the major sources of supply to The Mead Corporation and other leading paper manufacturers.



PULPWOOD STOCKPILE emphasizes importance of paper's most important raw material.

... and Huber is one of Mead's major sources of supply for coating and filler clays.

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Headquarters for Clay Technology



Developers of VISCONTROL® - Authors of "Kaolin Clays and Their Industrial Uses"

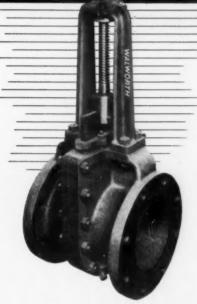
Producers of a Complete Range of Clays for Modern Papermaking

MINES AND PLANTS: HUBER, GA., LANGLEY, S. C.

This story first appeared in HUBER NEWS. Ask to be put on our mailing list.

Would you like to see a modern clay plant? We'd be pleased to show you through our mines and plants in the heart of America's clay country—we think they're the industry's finest. Write for trip arrangements—and to improve the quality of your papers, write for working samples and specifications of any of our nine filler and coating clays.

# Complete lines of **WALWORTH** Valves for PULP and PAPER MILL SERVICE



#### Featuring the No. 757F Pulp Stock Valve!

Here's the valve that was developed especially for clogproof operation on stock lines. There are no recesses where pulp fibers can accumulate. Circular ports permit full flow. The sharp, flame-hardened edge of the semicircular stainless steel gate shears through the pulp stock to a tight, leakproof shutoff.

The No. 757F can be supplied in sizes 4" to 24" inclusive — in All Bronze, Iron Body with Bronze Trim, Iron Body with Stainless Steel Trim, All Stainless Steel construction. Complete information is available from your nearby Walworth Distributor — or — write Walworth direct for a free copy of the booklet, "Walworth Valves for Pulp and Paper Mill Service".

#### and including these valves for "across-the-board" use!



WALWORTH BRONZE VALVES. These standardized lines of bronze valves provide an unsurpassed system of interchangeability of parts. Drastically reduces inventory problems.



WALWORTH PRESSURE-SEAL CAST STEEL VALVES. Ideal for high-pressure, high-temperature steam and boiler feed service. Internal line pressure is utilized to maintain a tight, leakproof body-to-bonnet connection, reducing bulk and weight of valve.



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WALWORTH 928FS SPECIAL ALLOY SWING CHECK VALVES. Designed for the severe corrosive services encountered in the pulp and paper industry.



WALWORTH LUBRICATED PLUG VALVES. Easy turning — quick operating. Lubricant can be renewed while the valve is in service. Lubricant completely surrounds the plug ports assuring a tight seal against leaks.

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Walworth Company of Canada, Ltd., Toronto

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SEARLES LAKE at Trona, California. Source of natural sodium sulphate, essential for quality kraft production



HENDERSON, NEVADA.

Source of NaClO<sub>3</sub> for the SOLVAY high-stage chlorine dioxide pulp bleaching process.



Add another step forward in American Potash & Chemical Corporation's continuing diversification program! Trona has long been the leading source of natural sodium sulphate (Na<sub>2</sub>SO<sub>4</sub>) from the brines of Searles Lake, so essential in quality kraft production. Now from American Potash & Chemical Corporation (Nevada) (formerly Western Electrochemical Company) Trona serves the industry with highest purity sodium chlorate, used extensively in the SOLVAY high-stage chlorine dioxide pulp bleaching process. Two dependable sources, two quality products-a combination that can't be beat!

### American Potash & Chemical Corporation

Los Angeles

New York

Atlanta

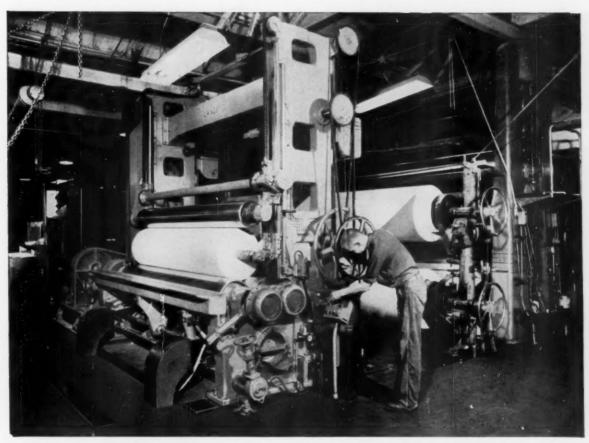
San Francisco

Portland (Ore

Producers of: Borax · Potash · Soda Ash · Salt Cake · Lithium Bromine · Chlorates · Perchlorates · Manganese Dioxide · and a diversified line of specialized agricultural and refrigerant chemicals

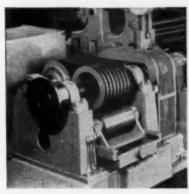


Plants: TRONA and LOS ANGELES, CALIFORNIA
HENDERSON, NEVADA
(American Potash & Chemical Corporation (Nevada)
SAN ANTONIO, TEXAS (American Lithium Chemicals, Inc.)



Typical tough winding job is this fine writing paper handled by Langston Slitter & Winder at Wausau Paper Mills Co., Brokaw, Wis. Engineered controls enable precise adjustment of rider roll pressure and drum overspeed for consistent, optimum roll density.

### Facts about roll density and Langston Slitters & Winders



Variable pitch sheave is adjustable on high speed Langston Winders to vary overspeeds of rear drum and rider roll simultaneously. Because they are quiet, require little maintenance, and are more efficient than flat belts, only V-belts are used on Langston Winders. Wind a roll too tight, and it may burst or buckle. Too loose, and it may telescope. There is an ideal roll density for each thickness and strength of paper—which Langston Slitters & Winders are designed to provide.

Rider roll pressure, for example, is variable over a wide range and can be closely controlled to suit varying kinds of paper. This is especially important at the start of the wind—before the roll picks up weight of its own.

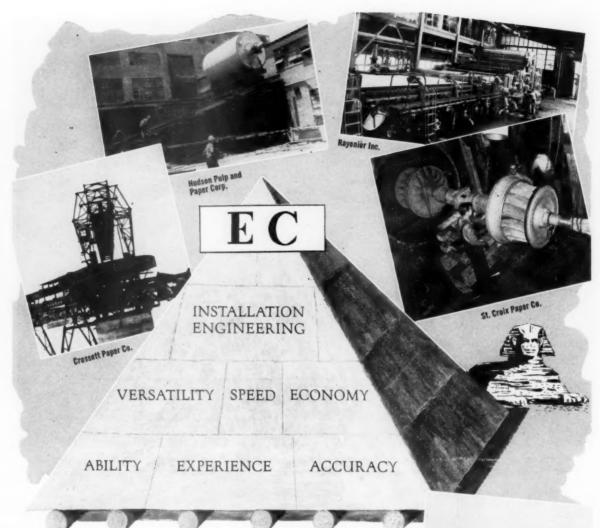
On high speed Langston Winders using V-belt drive, controllable overspeeds of rear drum and rider roll keep sheet constantly taut as it is wound. Tension can be further controlled within close limits by one of a variety of different braking systems on the unwind stand.

Other advantages of Langston Slitters & Winders include the cleancutting, shear-cut slitters, strong sturdy bedplate and sideframes, and hydraulic roll ejector and shaft loader available on most models. Sizes to 196 inches wide and speeds to meet your specifications. Write for full information. Samuel M. Langston Co., Camden 4, N.J.



LANGSTON





The massive Pyramids at Giza were painstakingly built as a lasting memorial. Their existence remains a tribute to precision craftsmanship and installation engineering. Although methods have been changed to coincide with the machine age the same attention to engineering detail has enabled the Eichleay Corporation to create impressive installations in all fields of industry.

The installation of mechanical equipment requires careful planning and specialized engineering, in all of which the Eichleay Corporation has shown leadership. Eichleay versatility and outstanding ability have been demonstrated by the speedy and economical solution of difficult installation projects in the pulp and paper industry and many other industries throughout the nation.

To study your particular project and plan a construction schedule for you, which places your new facility in early operation or minimizes interruptions when existing facilities are involved, is one of the many Eichleay services offered to industry.

Write for Illustrated Booklet



#### CORPORATION

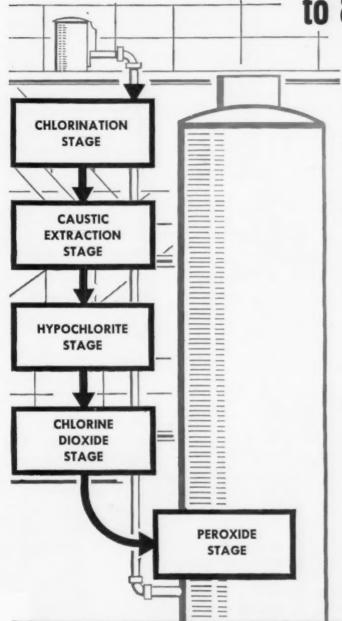
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Bowaters Southern Paper Corp.

#### **Eichleay Services**

Industrial Installations Construction of Heavy Foundations Building and Machinery Moving Shoring — Rigging To bleach kraft pulp with peroxide to 88-91 brightness



## ... use the new 5-stage process

Over the years, the brightness requirements for bleached kraft pulp have been progressively increased. This 5-stage bleaching process produces pulp that is unsurpassed for brightness, economy, strength retention and color stability.

#### HERE'S WHAT THIS PROCESS OFFERS:

- 1. Chemical and steam costs are lower: in each stage, the chemical is utilized at its highest reaction efficiency. This produces . . .
- 2. High brightness-88 to 91 G.E. units.
- 3. Maximum brightness stability due to the final peroxide treatment.
- 4. Premium strength characteristics as determined by viscosity and physical tests.

Technical assistance is available from Du Pont in putting this 5-stage process to work for you in your mill. If you wish, a Du Pont technical representative will show you what this process will do, draw up a list of materials and equipment needed, and help you put it in operation. This service is without obligation on your part.

If you would like more information on this process, send for our book "Peroxide Bleach-

ing of Kraft (Sulfate) Pulp," which has just been released. Clip and mail the coupon below . . . reserve your copy today.



#### DU PONT PEROXIDES

ALBONE® hydrogen peroxide



Wilmington 98, Delaware Please send me free booklet "Peroxide Bleaching of Kraft (Sulfate) Pulp.'

E. I du Pont de Nemours & Co. (Inc.) PP-7 Electrochemicals Dept., Peroxygen Products Div.

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY



This is one of the versatile 12000 Series Liquid Level Controllers on a heat exchanger in a power plant installation.

## In Masoneilan 12000 Series Liquid Level Controls...

# Five-Point Versatility Solves Processing and Power Plant Control Problems

Here, in one group of related designs, is a completely versatile and adaptable series of liquid level controllers. They offer a one-source solution to the majority of level control problems with flow and storage of liquids in processing and power plant systems. These range, rating and material specifications, and the flexibility in mountings and control types presented with the photographs below demonstrate this important Mason-Neilan advantage . . .

Wide Selection of Ranges — standard ranges include 14", 32", 48", 60", 72", 84", 96", 108" and 120". Ranges with even longer spans can be supplied.

Wide Selection of Pressure Ratings — In the shorter level ranges, standard ratings are from Class 125 ASA in iron to 2500 lb ASA in carbon steel; in all ranges from 150 lb to 600 lb ASA in carbon steel. Under temperatures up to 100° F steel ratings may go as high as 10,000 lb.

Wide Selection of Materials — to meet all usual conditions, a variety of materials is available:

For displacer chambers—iron, carbon steel, bronze,

carbon molybdenum, chrome molybdenum, stainless steel, Monel, etc.

For displacers — Type 304 and Type 316 stainless steel, Monel, Hastelloy B or C, Durimet 20, copper and solid Teflon.

For torque tube subassemblies — Inconel, Type 316 stainless steel, K-Monel, Hastelloy B or C, nickel, phosphor bronze, Durimet 20, etc.

There are Masonellan 12000 Series models for a multiplicity of applications . . . industry's widest selection of liquid level controllers. Look to Mason-Neilan to answer *your* problem. Write for catalog.



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Division of Worthington Corporation

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#### **Choice of Control Types**

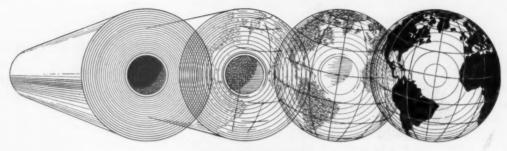
The basic instrument is a proportional controller, left above. In addition, proportional-reset and differential-gap types are available; and pneumatic set may be added for remote pneumatic adjustment of the set-point. Or the instrument may be a pneumatic transmitter instead of a controller. Also, any combination of controllers, or a controller and transmitter, right above, may be included in a single (larger) case and actuated by a common torque tube.



A variety of external mounting types with screwed or flanged connections, plus flanged types for mounting directly on the vessel, provide flexibility in meeting vessel requirements. The instrument may be mounted to right or left of displacer. The chamber types may have a mid-

types may have a midflange for field orientation. Top and bottom flanged connection shown at right.

# BUILD FOR WORLD BUSINESS ON DOMESTIC TERMS...



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It's easy to sell important overseas markets when you sell through Central National Corporation—because your sales to CNC are domestic sales, regardless of final destination.

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## CENTRAL NATIONAL CORPORATION

PAPER EXPORT

100 Park Avenue, New York 17, N. Y.

A member of The Gottesman Organization







NEW USE FOR PAPER IN NEAR EAST. New fruit packaging cartons made in Israel are loaded with oranges and readied for shipment at Haifa. Cargal Co's carton is fast replacing wooden boxes in Southern Europe and the Near East.

## ANNUAL WORLD REVIEW

SEE PAGE 4 FOR SUMMARY OF WORLD PRODUCTION

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## NORTH AMERICA

#### UNITED STATES OF AMERICA

5,000,000 More Tons of Machine Capacity Slated by 1958; Stanford Institute Forecasts Are Already Being Overshot

Population: 167,000,000. Per capita paper consumption: 418 lbs.

consumption: 4)	lo IDS.	
Production (short tons)	1954	1955
All paper Chemical	26,656,631	29,883,060
woodpulp	13,583,162	15,270,964
Mechanical woodpulp	3,632,719	4,009,762
Semi-chemical woodpulp	1,126,314	1,402,620
All woodpulp*	18,333,153	20,827,562
Paper imports Paper exports	5,189,006 700,399	5,474,640 845,226
Pulp imports	2,050,760	2,215,028
Pulp exports Principal paper	438,542	
board, book p	aper, coarse	paper. All
grades are made		Canada

Principal paper imports from: Canada. Principal pulp imports from: Canada, Sweden, Finland.

Principal paper exports to: Canada.

Principal pulp exports to: Britain, France,

\*West Germany, Canada.

\*All woodpulp includes screenings as well as grades named above.

Never before has the United States pulp and paper industry enjoyed such prosperity and never before in peacetime has it grown so rapidly as in

1955 and 1956.

Paper and paperboard production reached an all-time record high of 29,883,060 short tons for 1955, more than a 3½ million-ton leap upward from 1954. This was a 12% increase.

Never before was there such a skyrocketing rise, except in the Korean War year of 1950, which marked the second time in this generation that a war pulled the nation out of a recession. That year, paper production increased 4,000,000 tons—but it had fallen off 1½ million in 1949.

As of July 1, 1956, U.S. industry was operating at a new record level—producing paper and paperboard at a rate, which, if maintained, will mean a new alltime record production of 32,000,000 tons by Dec. 31. The American Paper & Pulp Assn. predicts production will be between 31,000,000 and 32,000,000 tons. According to the Stanford Research Institute

forecast of paper production (made in the fall of 1954) the figure of 32,000,-000 was to be reached in 1960—not 1956.

United States paper consumption for 1955 reached a record 34,512,000 tons, allowing for nearly 5,500,000 tons of imports—mostly Canadian newsprint—and record exports of 845,000 tons.

Per capita consumption of paper reached a high of 418 lbs. per person. No other country even approaches it, Canada being next with 280 lbs., and Sweden third with 200 lbs.

#### WHAT PAPERBOARD IS DOING

. . . Paperboard production alone for 1955 was 14,011,300 tons. This is almost half of the total U.S. paper and paperboard production. The National Paperboard Association predicts its division of the industry will hit 14,900,000 tons for 1956.

An increase of about 2½% a year for the paperboard field was forecast by Dr. Charles F. Roos, who heads the Econometic Institute, Inc. He predicted also that demand in 1957 should be very much the same as in 1956.

The NPA sees containerboard production alone, up 12.7% last year, making another 6% gain to about 7,-700,000 tons in 1956.

#### WOODPULP KEEPS PACE .

All woodpulp production in the U.S. set a new high in 1955 of 20,827,500 tons, spurting upward 2,500,000 tons from 1954. This, also, was the biggest increase in woodpulp production since 1950.

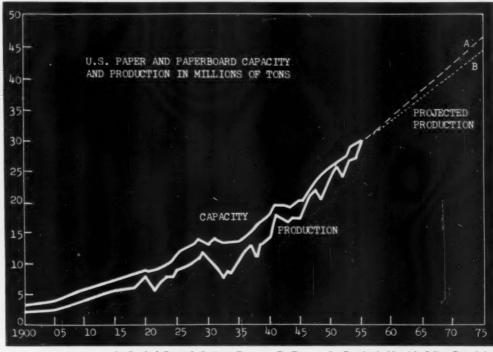
Some 10,000,000 tons of new ca-



COUNTRY'S PRESIDENT FINDS MANY USES FOR PAPER. This picture shows several grades and products of paper being used by PRESIDEN'T DWIGHT D. EISENHOWER at a picnic in the state of North Carolina.



U.S. paper and paperboard capacity and production in millions of tons with projections of the future.



A-Stanford Research Institute Forecasts; B-Forecasts by President's Materials Policy Commission.

pacity in woodpulp in both U.S. and Canada loom on the horizon. The outlook for so much pulp has a lot of veteran observers urging that the industry should now move a little slower, be cautious of too fast expansion.

Capacity for woodpulp production in the U.S.A. has increased from some 8,000,000 tons only 20 years ago to 24,197,000 tons this year-1956. This is a remarkable accomplishment, as it has been done without endangering future wood supply. Wood is being grown faster than it is being cut. The U.S. Forest Service has acknowledged that is true. For the first time since records were kept, growth exceeds drain in this country.

# 5,000,000 TONS MORE CAPACITY . . . PULP & PAPER surveys of new expansion in the various regions of the U.S., which follow in this section, and other estimates, indicate that nearly 5,000,000 tons of added annual paper and paperboard machine capacity is coming into production by 1958. At least more than 4,000,000 tons is definitely under way.

At least 30 new machines are slated to come into production this year, some already having started up, and this, along with rebuilding, will add around 1,700,000 tons to annual capacity.

Another 31 machines are expected to roll off paper and board by the end of 1957. This will add, with rebuilding jobs, close to 2,200,000 more

annual tons. There are several other new machines already known to be ordered and under way for delivery in 1958.

WOOD BACKING . . . According to latest American Pulpwood Assn. figures, the American pulp and paper industry owned about 26,000,000 acres of timberlands in 1952, and it

has added substantially to that figure. These are well managed lands, as conceded by all government and state agencies, and further than this, the pulp and paper industry has done more than any other single agency to help and encourage profitable and wise development of small woodlots and farm lots. Mills have literally put thousands of farmers into this lucrative business.

#### TRENDS IN U.S.A. INDUSTRY—1956 VS. 1955 First Four Months of Each Year

	1955	1956	Percent Change 1956 vs. 1955
PULPWOOD (Cords) Receipts Consumption Inventory, April 30th	10,349,286 10,806,144 4,784,504	12,166,256 12,053,617 4,925,237	+18 +12 + 3
WASTE PAPER (tons) Receipts Consumption Inventory, April 30th	2,827,874 2,880,302 407,295	3,090,655 3,093,682 465,855	+ 9 + 7 +14
PAPER AND BOARD (Tons) Total Production Paper Production Board Production	9,625,466 4,675,024 4,950,442	10,656,789 5,144,511 5,512,278	+10
TOTAL WOODPULP (Tons) Production Imports Exports New Supply Consumption in Paper & Board Inventory, April 30th At Pulp Mills At Paper & Board Mills	6,712,834 675,520 221,236 7,167,118 6,913,712 634,376 154,865 479,511	7,477,193 732,868 178,717 8,031,344 7,726,295 675,107 181,592 493,515	$ \begin{array}{c} +8 \\ -19 \\ +12 \\ +12 \\ +6 \\ +17 \end{array} $
MARKET WOODPULP (Tons) Production Imports From Canada From Europe Source: U.S. Pulp Producers Assn., Inc.		958,453 527,134 442,247 84,887	+ 7 +15

PAST, PRESENT AND FUTURE
. . . Here are some comparisons and forecasts for the future of U.S. paper and paperboard production:

										1	U		S.	A.	Production
Year															Short Tons
1939			*	*							*	×	*		13,509,642
1942															17,083,862
1950			0		0	o	0	0	0	0	0	0	0		24,377,222
1951			0		0	0	0	0			0				26,086,115
1952			0					0			0				24,413,212
1953					0	0		0							26,458,781
1954						0			0	0			0		26,656,631
1955		0		0											29,883,060
1956		0			0	0	0			60	3]	Į-		or	32,000,000
° 1960						a		0							32,000,000
°1965		9			0		0			0	0	0	0		36,900,000
°1970							۰	0		0					41,600,000
°1975			0				0			0	0		0	0	46,600,000

 Forecasts by Stanford Research Institute on basis of population growth, technological advances and competition of materials.

While production and consumption of paper and paperboard are already running far ahead of the Stanford Research Institute forecasts, this country still has a long way to go to catch up with what the Institute foresees in 1965 and 1975. It might be added that all other known forecasters also have been much too conservative. Not a single one foresaw the big year in 1955 (even PULP & PAPER'S optimistic guess in the 1955 WORLD REVIEW of 28,000,000 tons was 1,883,000 tons short).

SECOND FASTEST GROWING INDUSTRY . . . A McGraw Hill publishing company survey shows that pulp and paper is the second fastest growing industry in the U.S. today. Non-ferrous metals lead with growth of 123% this year. Pulp and paper is next with 83%. Steel is adding 82% this year and automobiles 81%. About a year ago Nation's Business rated pulp and paper as the third fastest growing.

President Don Leslie of Hammermill Paper Co., who ended his term this year as president of the American Paper and Pulp Assn., has stated that the U.S. pulp and paper industry is the fourth in U.S. in value of product. Not-so-recent U.S. census figures still show it as No. 5 industry. But Mr. Leslie asserted it could become No. 1

U.S.A.
ANNUAL WOODPULP CAPACITY

(in	short tons)
1934	7,006,310
1939	9,087,030
1946	12,310,164
1949	15,017,813
1952	18,771,390
1955	22,407,489
1956	24,197,531

# A SPECIAL FEATURE OF EVERY WORLD REVIEW NUMBER How the States Rank in Paper and Woodpulp Production PAPER AND BOARD—1952 WOODPULP—1953

	(latest avail	able)			(latest avo	ilable)	
			Percent				Percent
	I	Production	of U.S.		F	Production	of U.S.
	State	(tons)	Total		State	(tons)	Total
1.	New York	1,735,638	7.1	1.	Washington	2,158,318	12.3
2.	Wisconsin	1,639,631	6.7	2.	Florida	1,675,065	9.5
3.	Louisiana	1,522,006	6.2	3.	Louisiana	1,480,229	8.4
4.	Michigan	1,462,602	6.1	4.	Georgia	1,372,386	7.8
5.	Pennsylvania	1,408,635	5.8	5.	Maine	1,226,213	6.9
6.	Maine	1,371,967	5.6	6.	Mississippi	1,098,434	6.2
7.	Ohio	1,358,524	5.5	7.	Wisconsin	1,073,017	6.1
8.	Florida	1,255,989	5.2	8.	No. Carolina .	838,366	4.7
9.	Washington, Idaho	,		9.	Virginia	817,330	4.6
	Colorado	1,142,873	4.7	10.	Oregon	650,007	3.7
10.	Georgia	1,010,430	4.2	11.	New York	585,113	3.3
11.	South Carolina	937,130	3.8	12.	Pennsylvania .	380,047	2.1
12.	New Jersey	923,486	3.8	13.	Michigan	280,931	1.6
13.	Virginia	784,197	3.2	14.	New Jersey	81,582	0.8
14.	Illinois	760,771	3.1	15.	Ohio	69,703	0.4
15.	California	758,597	3.1	16.	Illinois	60,519	0.3

Note: To avoid disclosing production of individual mills, data for some states are not disclosed, or combined with other states.

some day, as it is the only major industry based upon a renewable resource-trees.

Over 10% of all the United States economy is based upon pulpwood and its products.

Net sales of the U.S. industry were about \$8,500,000,000 in 1954 and are estimated to have reached \$10,000,000,000 in 1955. Total assets of the industry reached about \$7,400,000,000 in 1955.

## Newsprint in U.S.A.-Changes in 30 Years

(Copyright 1956, by Pulp & Paper)

The resurging U.S. newsprint industry is expanding rapidly. There's a good 700,000 tons of new annual capacity slated by U.S. mills. Before it is through, two or three Canadian mills are expected to get into the swim, with mills in the U.S.A. of their own.

The sudden spurt in newsprint demand, which developed in 1955 hard on the heels of a booming U.S. economy, had not been anticipated by American newspaper publishers. Members of the American Newspaper Publishers Assn., late in 1954, discussed supply prospects with Canadian manufacturers and indicated that . any increase in demand in 1955 was likely to be small. Actually, when 1955 rolled to a stop, U.S. newspapers had devoured more than 5,044,993 tons or at the rate of 80.3 lbs. per person. This compares with 4,683,698 tons in 1954 and a per capita rate of 75.9 lbs.

BACK IN THE 1920's . . . What has happened over the past three decades to the U.S. newsprint industry is graphically shown in the table, prepared exclusively by PULP & PAPER

which appears on this page. In 1924 for the first time, Canada made more newsprint than the U.S.; today it makes more than five times as much. About 85% of Canada's production goes to U.S. newspapers.

Flight of the newsprint industry from U.S. to Canada resulted from lack of tariff protection. American publishers demanded that Congress put newsprint on the free list—the only paper grade without a tariff. In 1913 there were 65 companies producing newsprint in the U.S.; in 1926 there were only 38; by 1946, just seven. The development of a Southern newsprint industry and assured long-term newspaper contracts have been principal factors in swinging U.S. production upward again.

Thirteen mills are now making newsprint regularly.

THE BOOM IN THE SOUTH . . . The two-fold development of a Southern U.S. newsprint industry stems from the technological progress made in producing newsprint from the resinous, fast-growing pine of the Southern states, and from the tremendously expanding Southern economy. (Today the South is consuming

more and more of its own production,

which at one time was largely for shipment northward.)

Outstanding developments in U.S. newsprint circles in 1955-1956 are:

Just barely waiting for production to hit peak capacity at its Calhoun, Tenn. mill, Bowaters Southern Corp. has embarked on another multimillion dollar expansion phase aimed at doubling capacity. Included are plans for a third machine of 265-ton/day capacity.

Hard on the heels of finalizing construction at its new 230,000 tons/year newsprint mill at Mobile, Ala., International Paper Co. has launched plans for a 130,000 tons/year newsprint mill at Pine Bluff, Ark.

At Silt, Colo., J&J Rogers Co., under the new captaincy of industrialist David Wollin, plans a 100-ton/day newsprint mill.

Coosa River Newsprint Co., at Coosa Pines, Ala., is working on a 360-ton/day newsprint addition.

Hudson Pulp & Paper Co. has given the go-ahead signal for a 280-ton/day newsprint mill at its Palatka, Fla. mill.

Southland Paper Mills, Inc., plans 250-ton/day addition at its Lufkin, Texas mill and in Woodland, Maine, St. Croix Paper Co. plans a 95ton/day increase in production.

The estimated 1956 capacity of 1,630,000 tons as shown, in the data collected by PULP & PAPER, is less than 1% of the Newsprint Service Bureau's estimate. The slight discrepancy is due to variations in mill re-

#### SOUTHERN U.S.A.

## Triples Production in 15 Years, Should be Able to do it Again

Atlanta • In just 15 years, paper production in the South has tripled. For 1956-58 the biggest expansion in its history is launched. With improved forest prac-

tice already in effect, there is no doubt that the South can easily double and maybe triple production again!

With growth, of course, come problems: The threat of a labor shortage; increasing concern of paper companies on how to boost the cords per man/day cut by many pulpwood producers; water problems-not only droughts and shortages, but also effluent and river load problems.

These \* problems are being approached and overcome-by mechanization, improved methods of effluent disposal, better community and public relations, reforestation and genetics, and by a potent hybrid of Dixie and Yankee ingenuity. As one technical director told a PULP & PAPER editor:

"When you take the problems out of the paper industry, the romance goes with it.'

The fact that the future of the South is as bright as 90-brightness bleached pulp is evident in the fantastic growth witnessed this year-and what is going to happen in the two years coming up. The South, 1955, sums up as an expansion story. Here is what it looks like.

ARKANSAS-LOUISIANA, THE "BIG CIRCLE" . . . International Paper's announcement that it will build a \$57 million newsprint mill at Pine Bluff, Ark., focused renewed attention on that strip of Arkansas-Louisiana that stretches from there to Hodge, La.

### Within this 150-some-odd mile circle U.S. SOUTH—PULPWOOD

#### Receipts—Consumption-**Inventories**

(In thousands of cords)

$Y_{r}$ .	Receipts	Con- sump- tion	Yr. End Inventory
1941	6,400	6,227	334
1943	6,505	6,342	293
1945	7,153	7,208	145
1947	8,227	8,395	291
1949	9,060	9,255	670
1950	11,543	11,480	753
1951	12,844	12,854	772
1952	13,381	13,330	856
1953	14,959	14,752	1,089
1954	14,962	15,014	1,048
1955	18 699	19 022	925

Source: Bureau of the Census; except 1941-1943. by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

#### COMPANIES PRODUCING NEWSPRINT IN U.S.A.

#### Especially prepared by PULP & PAPER

	1926	1946	1952	1954	1955	1956
		Tor	is, Estimo	ted Capa	city	
Alexandria Paper Co	15,000	-	_	-	_	_
Algonquin Paper Co	29,000	-			_	
Blandin Paper Co	22,000	_	_	-	_	_
Bowaters Southern	,					
Paper Corp		-	_	70,000	135,000	180,000
Cliff Paper Co	13,000	-	_	_	_	
Consolidated Water P. & Pa.	102,000			_	_	-
Coosa River Newsprint Co	_	-	115,000	120,000	130,000	140,000
Crown Zellerbach Corp	174,000	200,000	210,000	215,000	210,000	240,000
Cushnoc Paper Co	20,000	_		_		
De Grasse Paper Co	56,000	Married	-		_	-
Dells Pulp & Paper Co	12,000	_	_	_		
Escanaba Paper Co	170,000	_	_	_		_
Finch, Pruyn & Co	44,000	10,000	_	_		_
Flambeau Paper Co	14,000	20,000	_	_		_
Gary Paper Mills, Inc.	1,000	_	10,000		-	
Gilman Paper Co	17,000	_	20,000	-	_	-
Gould Paper Co	30,000	-	_	_	_	
Grandfather Falls Co	11,000		_			
Great Northern Paper Co	257,000	300,000	375,000	378,000	450,000	520,000
Great Western Paper Co	20,000	000,000	010,000	010,000	450,000	520,000
Hennepin Paper Co	12,000	_				
High Falls Pulp & Paper	8,000					
Inland Empire Paper Co	29,000	-	20,000	22,000	22,000	22,000
International Paper Co	323,000	_	20,000	22,000	22,000	25,000
Maine Seaboard Paper Co	020,000	104,000				23,000
Manistique Pulp & Paper	20,000	104,000	25,000	15,000	7,000	8,000
Minn. & Ontario Paper Co.	76,000		20,000	10,000	1,000	0,000
Nekoosa-Edwards Paper		_	_	_	_	
Northwest Paper Co	10,000	_		_	_	
Occupantshi Passar Co			_	_		_
Oswegatchi Paper Co	16,000	_	_	_	-	_
Oswego Falls Corp	11,000		25 000	25 000	25 000	25 000
Pejepscot Paper Co	41,000	EC 000	35,000	35,000	35,000	35,000
Publishers Paper Co	9,000	56,000	80,000	90,000	93,000	100,000
St. Croix Paper Co	55,000	75,000	90,000	92,000	93,000	100,000
St. George Paper Co	10,000	-	20 000	25 000	05 000	05.000
St. Lawrence Paper Corp.* .	115 000	-	30,000	25,000	25,000	25,000
St. Regis Paper Co	115,000	_	_	_	_	-
Sherman Paper Co	16,000	FF 000	105 000	107.000	1 40 000	488.000
Southland Paper Mills	20.000	55,000	135,000	137,000	140,000	175,000
Tidewater Paper Mills	32,000	-		-	_	_
Watab Paper Co	17,000	_	_	-	-	_
Waterway Paper Prod. Co	14,000	_	_	_	_	-
West End Paper Co	13,000	_				
West Tacoma Newsprint Co.	_	men	25,000	60,000	60,000	60,000
Wisconsin River						
Paper & Pulp	25,000	-	-	-	4 400 0	4 000 000
TOTAL	1,739,000	820,000	1,150,000	1,259,000	1,400,000	1,630,000

\*Former St. Regis mill at Norfolk, N. Y.

of Southern U.S.A. are eight paper mills now operating, two new mills are planned and expansion laid out for several others. Olin Mathieson will spend \$40 million overhauling its newly acquired West Monroe, La., Brown Paper Mill. At Hodge, Gair Woodlands is spending \$20 million on Southern Advance Paper & Bag Co., which it bought last year. Included will be a new 246-in. Beloit machine.

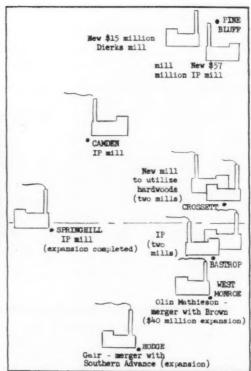
At Crossett, the new neutral sulfite semi-chemical mill which contains the largest cylinder machine (216-in.) ever made by Beloit is now in operation and being closely watched since it may provide an answer on how best to utilize onetime wasted hardwoods in the South.

At Pine Bluff, Dierks Forest, Inc., backed by some of the largest timber holdings in the Southwest and set up perfectly for sawmill-papermill integration, has ordered a 166-in. Black-Clawson Fourdrinier machine for its proposed \$15 million paper mill.

International Paper, in addition to its new newsprint mill at Pine Bluff, has also spent several millions modernizing its Louisiana mill at Bastrop and its Springhill, La., mill. So the big "circle" now sizes up this way: two mills at Crossett, two at Pine Bluff, two at Bastrop (both IP), one at Camden, Ark., one at Springhill, La., Olin Mathieson's mill at West Monroe, which will be doubled, and Gair's mill at Hodge, also slated to double in size.

In addition, Crown Zellerbach has started a \$2 million expansion program at the Gaylord plant at Bogalusa and is considering the possibility of a new mill at either DeRidder or Leesville, La. It will spend \$32 million for expansion in its recently acquired Gaylord division.

GROWING PAPER CONCENTRATION IN LOUISIANA - ARKANSAS. Map shows close concentration of mills in this area. Four (two at Crossett, two at Bastrop) are only 30 miles apart. When Pine Bluff mills are completed, total production per day of these 10 mills will be roughly 6,000 tons of pulp and 5,500 tons of paper and board products, including expansion at Hodge and West Monroe.



ALABAMA "EMPIRE" GROWS LARGER... In Alabama, the industry focused renewed attention on untapped forests and virile riverways. The newly formed Tennessee River Paper Co., headed by Gunnar Nicholson, former executive v.p. of Union Bag, began surveying several possible sites for its proposed mill. At least two were in northeastern Alabama. There's no rush, as the machine is not due for delivery for many months.

A new Beloit Fourdrinier to make newsprint, scheduled to be the widest and fastest yet made, was included as part of a \$32.6 million expansion at Coosa River which will boost the mill's tonnage to 260,000 tons. In Mobile, International Paper's new 282-in. Beloit newsprint machine is expected to be in operation by fall, as is a 282-in. Beloit kraft machine.

Within sight of the IP mill at Mobile, Scott Paper's Hollingsworth & Whitney division is in the throes of a big program. Spending \$21 million, Scott is building a machine room capable of receiving its new 208-in. Beloit Yankee machine and later a second new machine. This first addition will be constructed in such a way that additions may be added which will eventually connect the old machine room and the new one.

North of Mobile, the southern Alabama flat is also a scene of new growth. At Naheola, Marathon is presently constructing a mill which will boast three 186-in. machines and produce about 300,000 tons of kraft a year. Container Corp. of America's new mill at Brewton is now underway, eventually to produce 300 tons a day of bleached sulfate pulp and board. And a 300-ton-a-day paper mill is also under construction by Gulf States Paper Co. at Demopolis, Ala.



NEW MACHINE ROOM MIRRORED BY OLD . . . At Scott's Hollingsworth and Whitney Div., Mobile, Ala., the flooded foundation for the new machine room, part of its \$28 million expansion program, mirrors pulp mill of old division. New additions will also be made to the pulp mill and power pant. Foundation blocks can be seen in foundation. Sand had to be pumped from nearby river to build up area so it would take new building. In background is old mill where three machines now are operating.

BIG THINGS FOR FLORIDA . .

From Pensacola to Jacksonville and south as far as Miami, paper industry growth grabbed Florida headlines. St. Regis at Jacksonville will complete its \$40 million expansion by next March, its Beloit machine unofficially expected to boost its daily tonnage by about 1,200 tons a day or more to set a fabulous new single machine record. National Container, with its new mill at Valdosta running 150 tons a day over its designed capacity (record: 676 tons; capacity, 500), plans to spend \$25 million expanding its Jacksonville plant in the next five years. Continuous cooking may be introduced. William T. Webster, who will direct this expansion, is now in Europe studying continental installations for new ideas.

Buckeye Cellulose at Foley, Fla., has announced that it will double its present capacity by mid-'58, spend \$20 million on a new cellulose pulp unit. It now has a 180-in. Sandy Hill Fourdrinier and nine digesters. Hudson Pulp & Paper at Palatka should have its new Rice Barton machine in operation by late summer 1956. St. Marys Kraft Corp. completed its big expansion program, including the now operating 236-in. Beloit foodboard machine.

Lured by low taxes and ample wood supplies, Powell River Co., Ltd., of Vancouver, B.C., announced that it is considering a mill in the Southern pine region. Powell River manufactures newsprint and market woodpulp.

EXPANSION ANTICIPATED IN TEXAS... East Texas Pulp & Paper Co., which began operations last year with one Beloit machine and a coated foodboard and a market pulp mill, has now officially become the full property of Time, Inc. It would be unusual, indeed, if it does not consider more production facilities in due course. Southland Paper Mills, Inc., at Lufkin, Tex. has boosted its production of newsprint in 1956 with addition of a 212-in. Pusey & Jones Fourdrinier.

GROWTH ALONG THE EAST COAST... North from Florida, expansion continued full steam. It is hard to calculate just how much money was spent this year and how much will be spent in 1956 on expansion on the East Coast. Union Bag, for instance, announced that it

SOUTH
Annual Woodpulp Capacity

	(in	short	tons)
1934			1,213,650
1939			3,399,170
1946			5,715,475
1949			7,496,004
1952			9,928,030
1955			12,458,547
1956			13,430,628

From Bureau of Census data.

#### **PULPWOOD PRODUCTION STATISTICS FOR SOUTHERN STATES**

(in cords)

Especially gathered and prepared by PULP & PAPER

	Lo	peci	ung gume	reu	ини ргериге	a by FULF	UTATER	
1946 1947 1948 1949 1950 1951 1952 1953 1954 1955	Virgi 971, 1,025, 1,306, 895, 1,044, 1,326, 1,069, 1,267, 1,258, 1,406,	000 400 500 200 147 333 129 347 400	Nor. Caroli 709,0 765,2 926,2 802,1 1,024,0 1,304,5 1,332,3 1,528,9 1,507,4 1,573,9	na 100 100 100 100 100 105 140 103 129 100	South Carolina 1,002,000 948,400 1,108,500 1,012,200 1,182,413 1,251,045 1,275,698 1,446,157 1,330,900 1,513,313	1,215,20 1,770,60 1,790,50 2,221,27 2,370,14 2,513,27 2,879,16 3,057,50	865,000 881,700 1,221,200 1,036,100 9 1,384,694 3 1,490,325 2 1,583,341 8 1,674,864 0 1,661,600	Total 4,711,000 4,835,900 6,330,000 5,536,100 6,856,538 7,742,386 7,773,743 8,796,465 8,815,800 10,081,686
			Oklahom	a	Texas	Arkansas	Louisiana	Southwest Total
1946 1947 1948 1949 1950 1951 1952 1953 1954 1955			13,300 29,900 34,300 37,900 38,831 44,618 34,870 41,028 33,000 38,073		616,000 711,100 823,600 790,900 922,304 1,158,371 1,159,918 1,210,704 1,054,300 1,203,775	577,000 596,600 616,700 561,300 603,682 613,792 619,664 780,982 826,300 876,999	787,000 870,300 953,800 759,800 883,306 1,110,961 1,234,745 1,375,500 1,504,200 1,650,152	1,993,000 2,207,900 2,428,400 2,149,900 2,448,123 2,927,742 3,049,197 3,408,214 3,417,800 3,768,999
		Te	nnessee	Mi	ssissippi	Alabama	Total Mid-South	Total All-South
1946 1947 1948 1949 1950 1951 1952 1953 1954 1955		1 1 1 1 1 2 2 2	35,000 41,300 81,700 58,100 43,958 91,415 68,438 34,162 40,300 26,634	1, 1, 1, 1, 1, 1, 1,	238,000 279,100 433,900 167,700 665,863 793,376 861,388 922,975 963,800 908,495	756,000 777,700 981,900 911,300 1,321,204 1,406,207 1,608,609 1,765,140 1,831,900 1,928,828	2,130,000 2,198,100 2,597,500 2,237,100 3,131,025 3,390,998 3,738,435 3,922,277 4,036,000 4,163,957	8,844,000 9,241,900 11,358,900 9,923,100 12,435,686 14,061,126 14,561,375 16,126,956 16,269,600 18,014,642

Note—Because of rounding, state figures may not add up to totals. Latest years estimates gathered by PULP & PAPER. All other figures from Southern and Southeast Forest Experiment Stations of U.S. Forest Service.

is considering a new site for its proposed bleached kraft pulp mill with a paper mill to produce about 500 tons a day of newsprint made from 20% chemical and 80% groundwood. Then the news broke that Union Bag and Camp Manufacturing Co., Franklin, Va., were merging. Pulpwood Development Co., Inc. announced it will build a \$35 million pulp and paper mill on the Mississippi River near Fulton, Tenn. Bowaters Southern Paperboard Corp., already expanding its Calhoun, Tenn., newsprint mill to the tune of about \$55 million (original cost: \$60 million), announced that it will build a new mill on the Catawba River at Rock Hill, S.C., presumably to make pulp and newsprint. PULP & PAPER also learned that another paper company is considering construction of a mill at Calhoun Falls, S.C., near Rock Hill, and smack in the center of the South Carolina pulpwood area-where competition for wood is as rough as any place in the South.

Sonoco Products Co. at Hartsville, S.C., has added a 170-in. machine for corrugated grades; Stone Container Corp., will spend half a million upgrading its products; International Paper has announced construction of a converting plant at Raleigh, N.C., to produce 35 million milk cartons a year; Brunswick has made significant additions to its mill in south Georgia in the past year. Gair's Southern Paperboard increased production by about 15%. Rayonier is doubling its dissolving pulp capacity at Jesup, Ga., only two years after the first unit started up.

Halifax Paper Co., Inc., at Roanoke Rapids, is completing an expansion program which will add 300 to 500 tons a day to its present pulp production and Riegel Carolina expanded pulp production one third, spending \$5.8 million to boost daily production to 450 tons. West Virginia Pulp and Paper Co.'s Charleston mill will add a new Fourdrinier machine this year, increase production in both kraft and linerboard.

WHAT WAS PRODUCTION IN 1955? . . . According to U.S. Pulp Producers Association, Inc., the South last year manufactured 9,251,287 tons of kraft paper grades of woodpulp. (In addition to this there are four mills making dissolving pulp grades). Paper grades included 2,245,571 of bleached, 255,019 tons of semibleach and 6,750,697 of unbleached pulp.

This is more than a million tons over 1954 production of 8,037,104 tons of kraft paper grades. Virtually all paper grade pulp made in the South is converted into paper at the same mills.

Most significant increase was in bleached grades, which jumped nearly 400,000 tons from 1,899,981 in 1954. However, more unbleached kraft was made in 1954–6,966,195 tons, than was made in the South in 1955.

In 1955, Southern producers used a total of 19,022,000 cords of pulp-wood—more than half of the total 33,-313,000 cords used in the entire U.S.A.

#### MIDDLE WEST U.S.A.

## America's No. 1 Pulp Market; Many Mills are Expanding

• From Rainy Lake and its multitude of tiny islands in Northern Minnesota —above the North-South Continental Divide—all the way to the big little paper town of Chillicothe in southern Ohio, is one of the world's great papermaking regions.

It has a proud history of progress and pioneering. It is fitting that in this area are such important industry research centers as the Institute of Paper Chemistry, the U.S. Forest Products Laboratory, the Sulphite Pulp Mfrs. Research League and the U.S. Agricultural Residues Laboratory, and a still-young paper school at Western Michigan College.

Here in the Middle West were developed the new high speed onmachine coating processes which proved so timely, to match the needs of the super-circulations of the slick magazines that sprang up some 20 years ago. Meanwhile, brush and off-machine coaters, as in Michigan, improved their specialty products. Board coating was developed in Ohio. Close to 2,000,000 tons of coated board and paper are being made this year in the Midwest

Here, too, in the Midwest, American hardwoods were first used for book paper and glassine and the revolutionary semi-chemical process came into flower at half a dozen pioneering mills. Improved tissue products and installation of a half a dozen new tissue machines in Wisconsin, alone, showed the way in that field.

GREATEST PULP MARKET...
The Midwest is reputedly the greatest market in the world for woodpulp, except for Britain and France. Some major producers for domestic and world markets sell at least half of their production in the states of Wisconsin, Michigan, Minnesota, Illinois and Indiana. Probably the total sales this year will be nearly half a million tons.

And yet, the three major wooded

## LAKE STATES ANNUAL WOODPULP CAPACITY

(in short tons)

1934	1,363,535
1939	1,491,270
1946	1,725,733
1949	2,058,271
1952	2,315,722
1955	2,485,938
1956	2,619,214

Midwest states, supposedly cut over so heavily by lumber firms in the 1880-1910 era that their commercial forests were through, are now coming back strong as producers of pulpwood. Pulpwood production in Minnesota, Wisconsin and Michigan was 2,404,-000 cords, the highest in 1955 for any year except 1951 (Korean War). It has been increasing steadily for the past three years. Use of the lowly aspen, once called a "weed" tree, has exceeded the 1,000,000-cord mark for the past two years. Counting other hardwoods with aspen, these species reached a record high of 1,245,000 cords in 1955.

#### PULPWOOD "COMEBACK" . . .

Wisconsin woodlands executives now figure they can support their state's pulpwood needs except for relatively small amounts of softwoods needed for sulfite. Michigan has made a phenomenal comeback, with hardwood forests thriving throughout the state, and justifying four new mills and expansion of three others in recent years.

The Lake States annual woodpulp capacity has doubled in about 20 years to 2,619,214 tons per year in 1956—this year. This was an increase of 134,000,000 tons over 1955.

Among the leading papermaking states, the latest available reports (1952) showed Wisconsin second to New York and it may now actually be first or second to Louisiana. Michigan was fourth and Ohio seventh. The three states would still be high among the leaders.

TRAIL BLAZERS . . . The Midwest also blazed a trail for industry community relations programs. The Wisconsin "Workshops," whereby a number of mills exchange and develop new ideas on community policies, has been the model for similar organizations throughout the country. Likewise, the Wisconsin Paper Group, a car-pooling cooperative, is a profitable venture in this territory. The Lake States Roadbinder Assn., banding together nine Wisconsin sulfite mills in a program to improve Wisconsin roads, is another unusual development. These mills will use 27% of their lignin production this year on

#### Production of pulpwood in the Lake States by states

Production in thousand cords (rough wood basis)

Year	Lake States Region	Minnesota	Wisconsin	Michigan
1946	2,250	977	428	845
1947	2,037	852	493	692
1948	2,184	988	468	728
1949	1,552	606	427	519
1950	1,872	748	468	656
1951	2.577	1.077	565	935
1952	2,281	937	582	762
1953	2.091	813	554	724
1954	2,325	837	691	797
1955	2,404	885	710	809

Source: Lake States Forest Experiment Station, U. S. Forest Service.

#### Production of pulpwood in the Lake States by species

Production in thousands of cords, by species

Year	All Species	Spruce	Balsam	Pine	Hemlock	Aspen	Misc.
1946	2,250	417	257	493	314	713	56
1947	2,037	390	311	509	199	575	53
1948	2,184	436	400	493	182	625	48
1949	1.552	320	319	273	108	486	46
1950	1,872	315	318	346	131	694	68
1951	2,577	420	348	545	220	935	109
1952	2,281	452	391	347	191	820	80
1953	2,091	322	248	356	122	939	104
1954	2,325	386	311	370	125	1.006	127
1955	2,404	399	289	377	94	1,090	155

Source: Lake States Forest Experiment Station, U. S. Forest Service

**EXPANSION** . . . As in other areas, expansion in the Midwest is in high gear.

Consolidated Water Power & Paper Co., with a new modern wood preparation plant already in operation at Wisconsin Rapids (see June 1956 P&P), and pulping additions going in, has also a \$15,000,000 investment in a new Beloit 185-in. enamel book paper machine (60,000 tons per year) and plant to be completed next June at Biron, Wis.

Charmin Paper Mills is expanding its pulp production at Green Bay and rebuilding its newly acquired second mill, the long idle Cheboygan, Mich., 2-machine operation.

Celotex Corp. has acquired extensive hardwood forests in northern Michigan for a fiberboard mill at L'Anse, Mich. Alvin J. Huss, Chicago lumberman, announced the new Huss-Ontonagon Pulp & Paper Co., to make semi-chem corrugating at the old Ontonagon, Mich., mill, with much new equipment including a 176-in. Pusey-Jones machine. At Alpena, Mich., another hardwood board plant is being built by Abitibi.

American Boxboard Co. is pushing an extensive expansion of its semichemical pulp and board making at Filer City, Mich., installing another machine and doubling output by late 1957. Central Paper Division of S. D. Warren Co. is continuing improvements at Muskegon, Mich., with 60 tons more of coated paper and bleach plant by end of 1956. Next will come rebuilding of its kraft pulp mill

Neenah Paper Co. merged into



COOPERATIVE SHIPPING BY WISCONSIN MILLS ENJOYS BIGGEST YEAR. JAMES W. VANDER HYDEN (left), Assistant Secy. of the Wisconsin Paper Group, points to record number of pool car shipments made in 1955—3,025 r.r. cars. IRWIN PEARSON (right), Executive Secy. of the WPG since its inception in 1934, points to number of market cities served by pool cars—262. A total of 157,719,235 lbs. of paper produced by the 35 member paper companies of Wisconsin were shipped this way.

rebuild.

Kimberly-Clark Corp., and besides the additional book paper and tissue machines in its Wisconsin mills since the war, K-C has now bought paper mills in Mexico and England, and is also building mills in California and expanding in Alabama. K-C installed recently a new No. 5 coated book machine at Kimberly, Wis., and rebuilt a machine at Munising, Mich.

Even smaller mills are keeping pace, with Bergstrom Paper adding a finishing plant and rebuilding two machines, and Whiting-Plover adding

## Record of Wisconsin Paper Group 35 Wisconsin Companies Pool Car Shipments

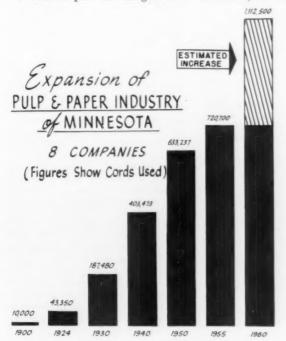
(Selected comparative years)

	P	No. of ool Car shipped		ons Shipped
1935 .		1,880		43,224
1940 .		939		65,758
1950 .		2,769		75,189
1955 .		3,025		78,859
nishing	and	powe	r and	a machine

MARATHON'S \$132,000,000 PROGRAM . . . Marathon Corp. has announced a \$132,000,000 four-year growth program, which includes its new mill in Naheola, Ala., but \$82,000,000 will be for present plants, mostly in the Midwest. It will start another new Beloit No. 9 tissue machine at Northern Mills division in Green Bay, next year, giving it 20 machines at six mills.

Chillicothe Paper Co., now a Mead subsidiary, is adding a 188-in. Rice Barton machine for offset and high grade book papers by mid-1957. Sutherland Paper Co. in Kalamazoo spent nearly \$7,000,000 in the past two years on papermaking and other expansion and also purchased Fort Orange (N.Y.) Paper Co. Kalamazoo Paper Co. is starting up its new Rice Barton paper machine this summer.

Thor Corp., of refrigerator fame and other products, moved into the paper industry by acquiring Allied Paper Mills in Kalamazoo, Mich., in Dec. 1955; then in June 1956, Thor



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leased the St. Regis (old Bryant) paper mill in Kalamazoo. The Allied Mills in Otsego, Mich., were purchased by Silvercote.

A group of Duluth, Minn., businessmen bought an old flax fiber plant there with plans to go into making hardboard and woodpulp products.

RHINELANDER EXPANDS .

Rhinelander Paper Co. was adding substantially to its woodpulp manufacturing facilities at its Wisconsin glassine mill, now a St. Regis division.

A chlorine dioxide bleach stage and two more 8 ton digesters are being added at the Nekoosa, Wis., mill of Nekoosa-Edwards Paper Co. It started up a new Combustion Engineering 350-ton recovery plant and Murray barking drum.

Crystal Tissue Co., Middletown, O., ordered a new Black Clawson Fourdrinier to up its tonnage 25% by mid-1957. Beckett Paper Co., Hamilton, O., added a 143-in. Fourdrinier this year.

Menasha Wooden Ware Corp., of Wisconsin, already with a plywood mill in the Far West, is considering a pulp and paper mill site in Oregon.

Watervliet Paper Co. has expanded its book paper production with addition of a new 60-ton bleached neutral sulfite pulp mill using Michigan hardwoods in its area for the first time.

Champion's expansion has mostly been in the South, but it added a cast coating machine, a saveall and other items at Hamilton, O.

SCOTT PROGRAM AT DETROIT

... Scott Paper Co., while expanding in other mills, has been carrying out a 5-year \$20,000,000 program which will double the production of its Detroit, Mich., Division to 300 tons. A new Beloit 142-in. Yankee machine is the first major addition there, starting up last fall—the third new machine there in just five years.

Thilmany Pulp & Paper Co. is continually improving its kraft pulp and paper operations, adding a new Babcock & Wilcox recovery boiler and a Black Clawson paper machine as well as replacing two digesters.

Port Huron Sulphite Paper Co. has added a new Yankee machine for lightweight paper.

Crandon Enterprises are changing over an old mill at Fort Madison, Ia., from straw pulp board to semichemical woodpulp and board. Minnesota Mining & Mfg. Co. bought Hartford City (Ind.) Paper Co. machine will produce 700 or more tons a day. However, value of products vary widely too.

"UP-TO-HERE" in EXPANSION . . .

The pulp and paper industry in the Northeast has not stood still and right now mills are "up-to-here" in expansion and modernization. New processes to use harwood trees are unlocking the door to further modernization and expansion.

"We're not doing much," a mill manager will modestly say as he shows you through his small one-machine mill. It may be a new wet end or a rebuilt dryer section or possibly new stock refining equipment. It's the same story in each mill and it all adds to a valuable contribution, each mill in its own way, to the industrial growth of the industry.

Here are a few "for-instances" Having discovered a key to further development of its vast natural resources (2,250,000 acres of timberlands in Northern Maine), through commercial development of the Chemigroundwood process, Great Northern Paper Co. has just wound up a \$45 million expansion and modernization program at its East Millinocket, Me., mill and is now kneedeep in a \$21 million program at Millinocket. This will include a new steam plant and the speed-up of its 10 paper machines.

Here, in the Northeast, the Chemigroundwood process was conceived and put into commercial operation. This process is the pre-treatment of hardwood logs prior to grinding or defiberizing and it is reported that Great Northern has converted one of its paper machines to the production of 9-pt. corrugating medium made by the Chemigroundwood process.

MAINE GETS NEW MILL . . . At Lincoln, Eastern Corp. is building a \$10 million kraft pulp mill designed principally for hardwoods, although bleached kraft will be also made from softwoods. The Kamyr continuous pulping process is expected to be used and Rust Engineering Co. will handle the new mill construction.

At Berlin, N.H., Brown Co. is going ahead full steam on a \$17 million program invloving new processes and new equipment The new kraft bleach plant will use the new Day-Kesting chlorine dioxide generating process. Brown is also converting to the Babcock & Wilcox-Weyerhaeuser-Howard Smith magnesium bisulfite pulping and chemical recovery process. Other additions: Sulfite pulp indirect cooking systems; new kraft pulp mill storage facilities; a new kraft raw stock screening system; new pulp finishing and shipping facilities.

#### NORTHEAST U.S.A.

## Makes 30% of Nation's Paper; New Processes Spark Mills

• In the confines of the eleven states comprising the Northeast are an estimated 14 pulp mills and almost 400 paper mills; which is almost half the number of total U.S. mills (New York alone has more than 100 paper mills).

Total pulp production hits somewhere around 3,609,800 tons, and paper around 30% of U.S. production, or, according to PULP & PAPER estimates, about 8,730,000 tons.

SPECIALIZES . . . This is an area that specializes in specialty papers—papers run at slow speeds for short runs. And when such a mill adds up its daily or weekly production figures, it may not be as impressive as tonnage figures from a large kraft mill that may run at tremendous speeds (some over 2,000 fpm) for days on end of one grade. A cigaret paper machine, for instance, may strain all its productive efforts and spew forth 15 tons while a large, high speed kraft



NEW PROCESS IN NORTHEAST. This is heart of Hammermill Paper Co.'s \$6 million Neutracel plant at Erie, Pa., which uses hardwoods for fine paper production. Picture shows where Neutracel stock, after dewatering and defiberizing stages, is refined in Sprout-Waldron disc refiners.

## NEW ENGLAND ANNUAL WOODPULP CAPACITY

(in short tons)

1934	1,490,325
1939	1,096,160
1946	1,592,089
1949	1,655,041
1952	1,909,565
1955	1,972,983
1956	2,189,964

From Bureau of Census data.

## MIDDLE ATLANTIC STATES ANNUAL WOODPULP CAPACITY

(in short tons)

981,305
1,096,160
1,038,893
1,229,533
1,315,572
1,337,193
1,420,007

From Bureau of Census data.

FAST MACHINE FOR GLAT-FELTER... One of the fastest machines for fine papers will start up this fall at Spring Grove, Pa., when the P. H. Glatfelter Co.'s new 188-in. wide Rice Barton machine is expected to add 130-tons/day to mill output. Designed for variable speeds from 330 fpm to 2,000 fpm, it is part of Glatfelter's \$12.5 million modernization and expansion program.

Gould Paper Co. at Lyons Falls, N.Y. is taking steps toward Chemigroundwood operations. Bauer Bros. is reported to have installed a 40ton/day experimental unit.

At Lawrence, Mass., Champion-International is girding for an ambitious program to improve its plant facilities. One coating machine is being rebuilt; a new calender to take the full trim of No. 8 coater is scheduled for fall delivery and installation of a modern recovery furnace is slated for 1957.

At "Paper City", Holyokė, Mass., American Writing has spent some \$7 million in improvements, the latest being two new Sandy Hill Iron &



LOOK AT THAT WOOD! And there's plenty more in Northeast! This is but one phase of softwood river drive each Spring by Great Northern Paper Co. "The Northern" uses about 500,000 cords per year and has a "small acreage" of 2,250,000 acres in Northern Maine.

Brass Works' new Ideal Fourdriniers. Texon, Inc., also at Holyoke, is putting in a new Fourdrinier for its wet web processing system.

ANOTHER MACHINE FOR FITCH-BURG . . . At Fitchburg, Mass., Crocker, Burbank & Co., Assn., with 18 paper machines now on line, has a new Beloit 156-in. Fourdrinier on order for 1957 delivery. Another machine for saturating papers starts up this year and two of the present Fourdriniers are being modernized. Major changes were made on two other machines in 1955 in addition to building a new research and testing laboratory.

Downingtown Paper Co., at Downingtown, Pa., is modernizing its No. 2 mill. Features will be a new 8-cylinder wet by Manchester Machine Co. with four main presses; two new 7-roll Black-Clawson calender stacks; a new cutter, reel and winder. The new beater room will have three Hydropulpers by Black-Clawson.

At Newark, Del., the Curtis Paper Co. has a new E. D. Jones Hi-Lo Pulper.

Oxford Paper Co. has made many

additions at its Rumford, Me., mill. New Bauer Centri-Cleaners have been installed in the groundwood mill; Centri-Cleaners were also scheduled for installation in the hardwood kraft mill and the sulfite mill. Other improvements were made on some of the paper machines as well as in electrical generating system.

NEW PROCESS AT HAMMER-MILL... Probably one of the more important developments in the Northeast is the new Neutracel process of Hammermill Paper Co. at Erie, Pa. (See full report in PULP & PAPER, May, 1956). In this process Hammermill has discovered the secret of using hardwood fibers for its high quality fine paper grades.

Neutracel is a modified semi-chemical pulp process and officials of Hammermill told PULP & PAPER that it has many superior properties to sulfite pulp from softwood. With the successful operation of its new \$6 million Neutracel pulp plant at Erie, rated at 100-tons/day and designed for quick doubling of capacity to 200 tons/day, Hammermill is contemplating another mill site in Pennsylvania in the heart of the abundant hardwood forests.

At Ausable, N.Y., a revitalized J&J Rogers Co., under David Wollin, New Jersey industrialist, has spent \$1 million since early 1956. Included are two new Chicago Bridge & Iron digesters (one for semi-chem, the other for increasing sulfite capacity); a new wood handling yard for hardwood; new Bird Jonsson screens, Vibrotors and Bauer Centri-Cleaners.

In the paper mill a new 144-in. Fourdrinier is scheduled for installation as well as a new Shartle Bros.

#### NORTHEAST STATES PULPWOOD STATISTICS\*

(In Thousands of Cords)

		Receipts			Yr. End	
	Domestic	Imports	Total	Consumption	Inventory	
1941	3,630	1.269	4.899	4.935	1.657	
1945	3,676	1,101	4.777	4.689	1.075	
1947	4,571	1,163	5.734	5,425	2.147	
1949	3,869	1,004	4.873	5,009	1.861	
1950	3,940	1,060	5,000	5,497	1,300	
1951	5,097	1,586	6,683	6,139	1,850	
1952	4,881	1,422	6,303	5,724	2,260	
1953	4,677	1,025	5,702	5,670	2,035	
1954	4,643	1,095	5,738	5,805	1,640	
1955	6,262	1,396	7,658	7,844	2,681	

°This combined table includes areas described in Bureau of Census statistics as Northeastern area and Appalachian area. Sources are Bureau of Census and WPB in war years—table arranged and compiled by PULP & PAPER.

Hydropulper. The company was scheduled to convert to ammonia base pulping in the spring of 1956.

WARREN CO. CONTINUES IM-PROVEMENTS...S. D. Warren Co. contemplates spending \$5 million in 1956 at its Cumberland, Me., and at Muskegon, Mich., mills

Scott Paper Co. at Winslow, Me., is spending about \$6 million to add some 50-tons/day of sanitary tissue. St. Croix Paper Co. at Woodlands, Me., is putting in a new Beloit newsprint machine and expects to add 95 tons/day to its production.

About 850 tons/day of board is contemplated by Whippany Paper Board Co., at its mill in Whippany, N.J. Hurlbut Paper Co. at South Lee, Mass., is putting in a new Fourdrinier for special industrial papers.

Allied Chemical & Dye Corp. expects to start up its Sunbury, Pa. gypsum liner mill this summer. And Columbia Box Board Mills, Inc., at Walloomsac, N.Y. is putting in a new machine for 150-tons/day of box-board.

WEST VIRGINIA ADDITIONS . . . . West Virginia Pulp and Paper Co., as part of some \$17 million expenditures in 1955, installed a new on-machine coater at its Luke, Md., mill and contemplates two more this year. At Tyrone, Pa., one paper machine was rebuilt and two other machines improved for greater manufacturing flexibility. Finishing room improvements at Luke, Mechanicville, N.Y., and Tyrone and Williamsburg, both in Pennsylvania, were made.

At Madawaska, Me., Fraser Paper, Ltd., has put in a battery of Bauer Centri-Cleaners, and among other changes taking place is a new J. O. Ross Engineering Corp. totally enclosed hood for one of the paper machines.

## PACIFIC COAST STATES ANNUAL WOODPULP CAPACITY

(in short tons)

1934	1,296,265
1939	1,659,430
1946	2,057,974
1949	2,578,964
1952	3,302,501
1955	4,152,828
1956	4,537,718

hardwoods, the West's alder, related to poplar in the East, as the resource of two mills, and generally hardwood use is increasing, but not comparable to that in the East and South.

The trend, to sawmill or veneer plant chips in the Far West has rapidly gained impetus and is the entire basis for two new mills and partially for others. Some forest industry men say there is enough sawmill left-overs to build another ten moderate sized mills in the Far West. Two mills are now using sawmill chips 100% and for two others it comprises around 40% of their pulp raw material.

WOODPULP CAPACITY TRIPLES IN 20 YEARS . . . Woodpulp producing capacity in the Pacific Coast area has increased from 1,300,000 tons in 1934 to over 4,500,000 tons in 1956. In just two decades is has tripled. By 1958, the U.S. Pulp Producers Assn. makes a very safe prediction that it will reach 4,825,000 tons.

Production of pulp in the Far West was 3,645,000 tons in 1955, up 602,000 tons from 1954, and about two-thirds was made in just one state—Washington.

Washington State is still the No. 1 pulpwood state and the No. 1 woodpulp state, as well, of the U.S.A. It leads by a substantial margin over all other states.

1,000,000 CORDS MORE IN JUST ONE YEAR . . . The pulpwood consumed by mills on the Pacific Coast, including Idaho and Alaska, phenomenally increased from 5,425,000 cords in 1954 to 6,466,000 cords in 1955. This is an increase of over 1,000,000 cords in just one year! It is about 23% of the U.S. total.

Much of this was what used to be waste wood. The growth in the Far West consumption of pulpwood has been achieved without imperiling future growth. Entire big mills have been built of 200 to 250 tons daily capacity without cutting one more single tree than was being cut before! This is the really significant news of the Far West pulp and paper expansion.

The Far West produced more than half of the dissolving and special alpha pulps in U.S.A. last year—480,-

## PACIFIC COAST U.S.A.

## Ten More Mills are Under Way, More Wood, But Fewer Trees Cut

Portland, Ore.

• In mid-1956 there were ten sizable new pulp or paper mills or complete new pulp or paper additions to existing mills under way in Washington, Oregon and California. These were definitely being engineered, under construction or near completion. This did not count Alaska, where timber has been sold for three more mills at Wrangell, Juneau and Sitka.

The raw material of the Pacific Coast states and Alaska is definitely pulpwood, except for relatively small amounts of waste paper used mostly in southern California. The wood resource as to species is undergoing significant changes. But still Western hemlock, spruce and second growth Douglas fir and other fir species are major pulpwood species. Weyerhaeuser and Scott Paper turned to



BIGCEST GLASSINE MACHINE IN WORLD STARTS UP. In its first hour of startup June 17, a 186-in, wide Beloit Fourdrinier glassine machine of R-W Paper Co. made paper. It is housed in long building in foreground, at Longview, Wash. Slush sulfite is pumped to it from Weyerhaeuser Timber Co.'s concentration of sulfite, kraft pulp and kraft board mills in background on Columbia River, 100 mi. from Pacific Ocean. Folke Becker is Pres. of R-W, joint Rhinelander-Weyerhaeuser venture. W. P. Gullander is Vice Pres. and Treas, and Benton Cancell is Vice Pres. Robert Harper is Res. Mgr. and Harry Hayward is Res. Sales Mgr. Rhinelander became a subsidiary of St. Regis Paper Co. in Apr. 1956.

686 tons. The total was 980,825 tons.

The Far West produced 1,116,370 tons of sulfite paper grades, over 40% of the U.S. total of 2,535,197 tons. Most of this sulfite made in the Far West was bleached-831,958 tons as against 284,412 unbleached.

LOSSES IN U.S. FORESTS . . . The industry is doing fine, building for the future, and producing wood on real working tree farms. But last year, a Congressional committee held hearings in the Far West to look into "the government's vast storehouse of unmanaged trees." The government was charged with letting 2,000,000 bd. ft. of overmature timber at creek heads rot away or fall prey to insects and fire, where selective cutting could improve the health of such stands, and much has been said of the lack of access roads in government timber and lack of accurate knowledge by the government of how much timber it owns.

Over 55% of timberlands in the Far West are government-owned but only 20% are used.

GROWTH MEASURED BY EM-PLOYMENT . . . The number of people producing and processing pulp and paper in the west coast mills has nearly doubled in the last 15 years. Following is a listing by every fifth year of hourly employes in U.S. mills in Washington, Oregon and California:

> 1956-19,000 employes 1950-15,500 1945-12,000 1940-10,000

When mill management and overhead personnel are counted, considerably more man-hours are apparent. The following man-hour figures for the three states are provided by the Pacific Coast Association of Pulp and Paper Manufacturers:

> 1955-45,495,764 1954-44,171,547 1953-42 500 000 1952-40,700,000 1951-40,500,000 1950-38,500,000 1949-35,500,000 1948-35,000,000 1947-32,500,000

PLANS FOR MILLS . . . Crown Zellerbach Corp. has tentative plans for a new 400 ton pulp mill in Clatsop county, Ore. This is not counted among the new mills mentioned at the beginning of this article. It depends on Oregon state approval of a cooperative agreement under which a 140,000 acre state forest would be used with Crown's own forests.

Northern California's first large pulp-paper operation was to be announced in the summer of 1956. Simpson Redwood Co., a division of the parent Simpson Timber Co. of Seattle, Wash., and an affiliate of Simpson Logging Co., Shelton, Wash., and Simpson Paper Co., Everett, Wash., has engaged H. A. Simons, consulting engineer, Vancouver, B. C. to draw plans for a 300-ton pulp mill and food board plant which the company hopes to build at Eureka, Calif. Rumors were not denied that this would be a joint venture of Simpson and Pabco-Fibreboard Products.

It would be a 300-ton mill. Adequate water facilities have to be developed, but there is no great hurdle anticipated here. Redwood and Douglas fir leftovers from Simpson's lumber manufacturing installations in the Eureka area will serve as raw ma-

MUCH EXPANSION AT LONG-VIEW . . . Weyerhaeuser Timber Co. expanded its Longview, Wash. plant capacity to about 1,000 tons per day with start-up of 200-ton addition-the West's first neutral sulfite semi-chemical plant, and a second paperboard machine installed for making corrugating medium for the container industry. It will start making chlorine and caustic soda in Longview late in

Weyerhaeuser also began expansion of bleached paperboard production at Longview by 250-350 tons per day and starts building new 400-ton magnesia base sulfite market pulp mill at Cosmopolis, Wash., expanded Longview sulfite mill production with 35ton addition to provide slush Mitscherlich type pulp for the new R-W Paper Co. glassine mill, a joint Weyerhaeuser-Rhinelander undertaking to start production in the summer of 1956.

Longview Fibre Co., also at Longview, is adding a 250-ton No. 7 machine which will bring daily kraft paper and board capacity to over 1,000 tons per day when it gets in production in mid-1957. A pulp mill is to be concurrently increased by 240 tons per day. Longfibre dedicates a new \$1% million container plant in Seattle, the company's fourth on Pa-cific Coast.

Crown Zellerbach Corp. acquired Gaylord Container, thus extending its production-marketing area across the nation. It is building an \$18 million paper mill and \$2 million multi-wall bag plant at Antioch, Calif., to be completed in late 1956. It sold its half interest in Fibreboard Products, to Pabco Products, Inc., for \$37,800,000. It starts producing screw-pressed pulp at Camas for use in the St. Helens, Ore., mill-a process similar to that to be used at its new Vancouver Island, B.C., mill for pulp going to Antioch. It dedicated a \$600,000 Central Research Dept. research laboratory at Camas. It undertook over a \$1 million program to increase newsprint production at Port Angeles division and inaugurated production of tissue on a new machine at Los Angeles. St. Helens mill started up the world's largest tissue machine and rebuilt No. 1 machine in modernization-expansion program bringing rated capacity here to 335 tons per day.

OTHER MILLS . . . Georgia-Pacific Plywood Co. started work on a new 250-ton kraft pulp and paper mill near Toledo, Ore., and acquired vast timber rights for another mill near Juneau, Alaska. Three firms filed for water rights for possible pulp mill construction in the Coos Bay, Ore., area where no such mills exist.

Rayonier Inc. at Port Angeles, Wash. mill is installing \$1 million woodmill. Oregon Pulp & Paper Co., Salem, became the seventh sulfite mill in Pacific Northwest to convert from calcium to ammonia base.

Western Kraft Corp. completed 120-ton mill, to operate exclusively on residue wood, at Albany, Ore., and immediately launched plans for increasing production capacity to 200

#### U.S. PACIFIC COAST-PULPWOOD Receipts—Consumption—Inventories

		(In Thous	ands of Cord	(8)	
Yr.	Domestic	-Receipts Imports	Total	Consum.	Yr. End Invent.
1941	2,585	332	2.918	3.019	742
1943	2,458	103	2,561	2,271	491
1945	2,470	126	2,596	2,472	420
1947	3,581	156	3,734	3,171	974
1949	3,015	148	3,162	3,199	1,031
1950	3,244	287	3,531	3,822	772
1951	4,565	261	4,826	4,490	1,070
1952	4,339	155	4,494	4,499	1,133
1953	4.463	-	4,463	4,692	1,108
1954	4,924	entered.	4,924	5,425	959
1955°	5,933	532	6,465	6,466	1,139

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52

-NPA, Pulp, Paper & Board Div.

\*Includes Alaska\*

tons. Diamond Match Co. announced it will build a forest products production center at Red Bluff, Calif., including pulp mill and molded pulp products plant. International Paper Co. revealed plans for two operations in California-a milk container plant at Turlock and corrugated fiber shipping container plant at San Jose.

Potlatch Forests, Inc., Lewiston, Ida., started up a second paperboard machine and a second pulp mill-a 200-ton continuous cooking Pandia unit-in late 1955. Container Corp. of America started construction of 150ton \$6 million 7-cylinder boxboard mill to be completed within two years at Santa Clara, Calif. and a new folding carton factory in Seattle territory to be completed early in 1957.

St. Regis Paper Co. announced after next spring it will go to work on plans for another machine at Tacoma, Wash. It purchased 1 million shares of Grower's Container Corp., Salinas, Calif., for \$2.50 per share, this representing 34% ownership of the firm, and also bought the \$5,000,000 Western Waxed Paper Co. in Seattle, which sells in 11 Western States

Scott Paper Co., West Coast Div. installed two new paper machines at Everett, Wash., during 1955, the first beginning operation in Feb. and the other in June.

Puget Sound Pulp & Timber Co., through its Canadian subsidiary, Vanwest Logging Co., Ltd., acquired Anglo-Canadian Timber Products, Ltd. Puget Pulp and its affiliate, Ketchikan Pulp (Alaska) have steadily increased production without major additions.

Meanwhile, the U. S. Government has sold all the available timber in Alaska, sufficient to support mills. The Japanese Tokyo firm acquired the Sitka site, Georgia Pacific got Juneau, and the Wangell site went to Pacific Northern Timber Co.

#### How Much Pulpwood Is There in Pacific Northwest?

#### By F. L. MORAVETS

#### Pacific Northwest Forest and Range **Experiment Station** U. S. Forest Service

Periodic estimates of the cu. ft. volume of pulpwood species in the forests of the Pacific Northwest region, comprised of Oregon and Washington, have long been features of the RE-VIEW NUMBERS of PULP & PA-PER. These estimates, prepared by the Forest Economics Research Division of the Pacific Northwest Forest and Range Experiment Station, U. S. Forest Service, Portland, Ore., have been based on periodic Forest Survey inventories.

The most recent regional estimate is current as of Jan. 1, 1953. The estimated net cu. ft. volume of all live timber 5 in. in diameter breast height and larger on commercial forest land is shown below in two tables: first by state and species, and secondly, by subregion and species. Although previous articles in REVIEW NUMBERS have shown only the volume in the so-called pulp species-Western hemlock, Sitka spruce, the true firs, Englemann spruce, mountain hemlock, and black cottonwood-it is now desirable to show the volume of all species as present pulp processes can and do use practically any species.

The Douglas-fir subregion includes the portions of Oregon and Washington lying west of the summit of the Cascade Range; the ponderosa pine subregion includes the portions east of the summit.

In addition to the live timber inventory there is a large volume of plant residues developed in the Pacific Northwest in the manufacture of lumber, plywood, and other primary products. Currently, nearly a billion cu. ft. of plant residue is developed annually in the region. Of this volume, about 9% is being utilized for fiber, 61% is utilized for industrial and domestic fuel, and 3% is used for other purposes; the remaining 27% is not

utilized. A very large part of the volume now used for fuel could be made available for use as fiber; this volume and the unutilized volume comprise a vast source of raw material for pulp

#### **Estimated Net Volume of Live** Timber 5 Inches d.b.h. and Larger in Oregon and Washington by Subregion, 1953

Species	Total region	fir	Ponderosa pine subregion
	1	Million cub	ic feet
Douglas-fir Western hemlock an	64,475	59,064	5,411
Sitka spruce	25,868	25,360	508
True firs	16,278	11,949	4,329
Engelmann spruce	683	76	607
Lodgepole pine	2,843	195	2,648
Other softwoods Total softwoods	30,434 140,581	10,957	19,477 32,980
Red alder	3,426	3,426	
Other hardwoods Total hardwoods	2,187 5,613	2,144 5,570	43 43
Total all species	146,194	113,171	33,023

#### **Estimated Net Yolume of Live** Timber 5 In. d.b.h. and Larger in Oregon and Washington by State, 1953

Species	Total region	Oregon	Washington
	M	fillion cub	ic feet
Douglas-fir Western hemlock and	64,475	42,877	21,598
Sitka spruce True firs Engelmann spruce Lodgepole pine Other softwoods	25,868 16,278 683 2,843 30,434	7,492 6,936 106 2,045 18,842	18,376 9,342 577 798 11,592
Total softwoods Red alder Other hardwoods Total hardwoods	140,581 3,426 2,187 5,613	78,298 1,272 1,403 2,675	62,283 2,154 784 2,938
Total all species	146,194	80,973	65,221

#### **INLAND EMPIRE PULPWOOD\***

Data for Northeastern Washington was revised last in 1949. Data for Western Montana revised last in 1951. Approved by USFS as essentially up-to-date in 1955.

Subregion†	Engelmann Spruce	Hemlock	Balsam Firs	Cottonwood Aspen	Total
		Mill	ion Cubic Feet		
N. E. Washington	65	124	139	18	346
N. Idaho	608	386	1,697	10	2,701
W. Montana	826	56	253	50	1,185
North Idaho	860	506	2,496	39	3,901
Total	2,359	1,072	4,585	117	8,133

Source: Northern Rocky Mountain Forest and Range Experiment Station, Division of Forest Economics, Missoula, Mont.

\* The sound volume inside bark of trees larger than 5.0 inches d.b.h. from stump to

4- to 6-inch top diameter.
† Northeast Wash. consists of Ferry, Lincoln, Pend Oreille, Spokane, Stevens and Whitman Counties; North Idaho is north of Salmon River; western Montana is west of Continental Divide.

#### Volume of Plant Residue Developed Annually from Manufacture of Primary Forest Products in Oregon and Washington, 1952

State and type of	Volume	Ve	olume utilize	d	Volume
residue	developed	For fiber	For fuel	For other	unutilized
		Mil	lion cubic fe	eet —	
Oregon:					
Coarse	304	21	146	16	121
Fine	351	11	228	5	107
Total	655	32	374	21	228
Washington:					
Coarse	129	42	76	5	6
Fine	176	8	140	6	22
Total	305	50	216	11	28
Region:					
Coarse	433	63	222	21	127
Fine	527	19	368	11	129
Total	960	82	590	32	256

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#### Wages and Industry Worth

Year	Wage Earners	Wages Paid	Industry Worth
1849	6.785	\$1,497,792	37,260,864
1869	18,021	7,208,691	34,556,014
1889	31,050	13.204.828	89,829,548
1899	49,646	20,746,426	167,507,713
1909	75,978	40,804,502	409,348,505
1919	113,759	135,690,642	905,794,583
1929	128,049	173,077,781	1,250,000,000
1939	137,445	175.687.842	1,700,000,000
1943	150,000	299,000,000	1,990,000,000
1946	167,000	366,000,000	2,440,000,000
1949	198,000	614,000,000	3,200,000,000
1950	205,000	694,000,000	3,800,000,000
1952	219,000	839,000,000	4,500,000,000
1953	221,000	919,360,000	4,560,000,000*1
1954	439,000	1,690,000,000	4,970,000,000**
1955	453,000	1,893,000,000	5,000,000,000*
	nated.	-11	

\*\* Federal Trade Commission Source: U. S. Census Bureau, A.P.P.A.

#### U. S. PULP & PAPER INDUSTRY

#### **Number of Companies and Mills**

										-M	ills—
10.40									Co's	Paper	Pulp
1946.				*	×				517	735	242
1947.		0	D	0			0		560	758	241
1948.		0	0		۰	0			570	768	245
1949.									565	764	255
1950.									572	767	259
1951.									530	769	278
1952.									490	768	303
1953.									483	772	299
1954.									482	775	319
1955.									495	788	326

#### UNITED STATES PULP AND PAPER INDUSTRY STATISTICS

	In B	illion of Dol	lars	In N	fillions	No. Employe	Tons es Per	Wages Per Pr	Unit
		Net Worth					dsEmploye		
1939	\$2.36	\$1.70	\$1.45	\$49	\$176	138	98	\$13.0	100.0
1942	2.68	1.92	2.46	265	284	164	104	16.6	101.9
1945	2.97	2.13	2.88	214	352	159	109	20.2	99.1
1948	4.68	3.34	5.38	346	612	205	107	23.8	111.1
1949	4.89	3.59	4.79	264	614	198	103	23.9	115.7
1950	5.59	4.08	5.89	529	694	205	119	23.2	125.0
1951	6.60	4.40	7.22	982	780	212	123	24.7	128.6
1952	7.07	4.89	7.00	665	839	216	(not	26.8	
1953	7.65	5.49	7.60	646	919	220	available)	27.2	
1954			8.7			261		26.5	
1955			9.9			269		26.5	

Note: Integrated operations of some companies into converted products does not permit

accurate distinction between manufacturing and converting operations.

PRODUCTION WORKERS AND WAGES

IN U. S. PULP, PAPER AND ALLIED
PRODUCTS INDUSTRIES

Yea <del>r</del>	Average number of wage earners (Thousands)	Total dollar wages (Millions)
1899	94	36
1909	145	68
1919	203	208
1929	229	281
1939	265	310
1949	389	1.112
1951	420	1,436
1953	444	1,683
1954	439	1,690
1955	451	1.893

Source: U. S. Bureau of Labor Statistics. Source of data prior to 1939: Bureau of Census.

Source: American Paper and Pulp Assn. **U. S. INDUSTRY GROWTH** 

(in Millions of Units)

	Pulpwood Con- sumption	Woodpulp Production	Woodpulp Con- sumption	paper Con-
1939	10.8 cords 23.7	7.0 tons	8.7 tons	4.4 tons
1952	26.4	16.5	17.3	7.9
1953	28.1	17.5	18.7	8.8
1954	29.2	18.3	19.0	8.1
1933	30.9	20.8	22.4	10.2
	Paper & board Production	d	Woodpulp	Newsprint Imports
1939	13.5 tons		2.0 tons	2.6 tons
1950	24.3		2.4	4.9
1952	24.4 26.5		1.9	5.0 5.0
1954	26.7		2.1	5.0
1955	29.8		2.2	5.2

## UNITED STATES—WEEKLY EARNINGS PULP, PAPER, PAPERBOARD AND CONVERTED PRODUCTS

	No. of	(For Pro	duction Wor	kers Only)
Yeur	Production	Ave.	Ave.	Ave.
	Workers	Weekly	Weekly	Hourly
	(In Thousands)	Earnings	Hours	Earnings
1947	406	\$50.21	43.1	\$1.16
1948	407	\$55.25	42.8	\$1.29
1949	389	\$55.96	41.0	\$1.34
1950	415	\$61.14	43.3	\$1.41
1951	434	\$65.51	43.1	\$1.52
1952	422	\$68.91	42.8	\$1.61
1953	444	\$72.90	43.0	\$1.69
1953 1954 1955	437 453	\$74.01 \$78.87	42.3 43.1	\$1.75

Source: U.S. Bureau of Labor Statistics

#### TOTAL PAPER PRODUCTION IN UNITED STATES BY GRADES (Tons of 2,000 lbs.)

Year	Newsprint	Book	Groundwood	Fine	Wrapping (Coarse)	Tissue	Sanitary	Absorben:	Building Paper	Other Paper	Total All Paper	Total Paper and Board
1899 1924 1940 1945	569,121 1,481,425 1,056,304 725,475	304,459 1,050,000 1,655,423 1,501,015	550,453 636,026	131,456 422,000 735,753 1,000,794	535,252 1,235,000 2,500,818 2,403,182	28,406 242,000 733,894 157,083	•	129,410	682,460 883,259	*204,697 *649,560 60,120 238,047	1,773,482 5,079,985 8,104,635 8,457,229	7,929,985
1948 1949 1950 1951 1952 1953	875,760 917,778 1,013,346 1,108,165 1,108,723 1,068,661	2,97 3,30 3,51 3,38	3,999 (8,222 )2,861 4,061 35,179 (6,338	1,140,859 1,014,954 1,198,574 1,366,425 1,295,179 1,289,569	3,026,699 2,757,731 3,285,635 3,627,072 3,237,885 3,397,782	205,095 186,667 225,199 270,138 209,000 231,166	1,008,16 1,148,35 1,215,25 1,148,00	2 86,113 1 126,690 8 124,412 0 118,000	1,321,431 1,151,374 1,424,633 1,385,691 1,298,799 1,317,253	307,690 247,893 340,903 419,036 396,698 538,249	11,118,530 10,348,894 12,066,192 13,010,418 12,197,165 12,703,754	20,315,436 24,377,222 26,048,143 24,422,785
1954 1955	1,191,760 1,458,373		82,800 70,929	1,323,944 1,453,843	3,428,608 3,715,783		561,334 685,220	1	1,355,941 1,519,662	526,209 642,348	12,970,596 14,346,000	

In 1899 and 1924 groundwood, absorbent, sanitary and building papers are included in "Other Paper." Beginning in 1948, groundwood included with book.
 Absorbent included in "Other Paper."

Source: U. S. Census Bureau.

#### BASIC U. S. PRODUCTION AND CONSUMPTION DATA

WOODPULP

	PA	PER		,	Consumption All Purposes (paper, rayon	PULPWOOD	
	Production (tons)	Consumption (tons)	Production (tons)	Consumption For Paper Only (tons)	cellophane, film, plastics, etc.,—tons)		
1899	2,167,593	2,158,000	1,179,525	1,216,254		1,986,310	
1909	4,216,708	4,224,000	2,495,523	2,856,593	******	4,001,607	
1919	6,190,361	6,479,490	3,517,952	4,113,911		5,477,832	
1929	11,140,235	13,347,925	4,862,885	6,704,341		7,645,011	
1934	9,186,266	11,185,682	4,436,128	5,969,633		6,796,659	
1938	11,327,000	13,488,300	5,933,560	7,975,000		9,193,991	
1942		19,608,862	10,783,430	11.038,020		17,204,000	
1946		22,509,788	10,605,225	12,092,093	12,605,093	17,817,560	
1948	21,897,301	26,082,093	12,872,292	14,374,586	15,034,586	21,189,458	
1949	20,315,436	24,694,482	12,171,786	13,606,387	14,181,387	19,949,440	
1950	24,377,222	29,013,060	14,810,860	16,483,201	17,183,201	23,627,000	
1951		30,609,822	16,494,000	17,704,000	18,480,000	26,576,000	
1952		29,013,000	16,472,979	17,274,000	18,041,008	26,476,110	
1953	26,458,781	31,322,952	17,537,295	18,681,713	19,480,837	28,150,003	
1954	26,656,631	31,159,209	18,341,175	19,033,994	19,900,794	29,201,000	
1955		34,526,162	20,827,562	20,659,000	21,484,000	33,332,000	

Source: American Paper and Pulp Assn.; U. S. Census Bureau.

## U. S. PAPER PRODUCTION, IMPORTS, EXPORTS, AND CONSUMPTION (All Grades—in tons of 2,000 lbs.)

Consumption

Production	Imports**	Exports**	Tons	Lbs/Capita
2,167,593			2,167,593	57.9
4,121,495	55,962	74,764	4,102,693	90.5
5,966,076	707,548	420,540	6,253,084	119.1
11,140,235	2,533,603	262,383	13,411,455	220.3
13,509,642	2,687,484	248,569	15,948,557	243.7
17,083,862	3,038,499	341,920	19,780,441	293.8
17,370,965	2,753,211	458,689	19,665,487	281.7
21,897,301	4,581,811	397,019	26,082,093	355.9
20,315,436	4,751,323	372,277	24,694,482	331.0
24,377,222	5,007,384	371,546	29,013,060	382.5
26,086,115	5,158,010	634,303	30,609,822	396.6
24,422,785	5,191,051	592,231	29,013,000	372.5
26,458,781	5,231,326	474,730	31,322,952	392.4
	5,189,500	699,918	31,146,213	383.6
29,896,748	5,474,640	845,177	34,526,211	418.5
	2,167,593 4,121,495 5,966,076 11,140,235 13,509,642 17,083,862 17,370,965 21,897,301 20,315,436 24,377,222 26,086,115 24,422,785 26,458,781 26,656,631	2,167,593 4,121,495 5,966,076 707,548 11,140,235 13,509,642 17,083,862 17,370,965 2,753,211 21,897,301 20,315,436 4,751,323 24,377,222 5,007,384 26,086,115 24,422,785 26,458,781 26,458,781 26,656,631 5,189,500	2,167,593 4,121,495 5,966,076 707,548 420,540 11,140,235 2,533,603 262,383 13,509,642 2,687,484 248,569 17,083,862 3,038,499 341,920 17,370,965 2,753,211 458,689 21,897,301 4,581,811 397,019 20,315,436 4,751,323 372,277 24,377,222 5,007,384 371,546 26,086,115 5,158,010 634,303 24,422,785 5,191,051 592,231 26,458,781 5,231,326 474,730 26,656,631 5,189,500 699,918	$\begin{array}{cccccccccccccccccccccccccccccccccccc$

\*\* Quantities estimated, wholly or in part, from values given. Imports and exports for various grades include 'Paper Products.'

Source-U. S. Census Bureau; A.P.P.A.

#### U. S. NEWSPRINT SUPPLY AND SOURCES

	0. 0.	IAFALOLE			JORGEO		
	I	n thousands	of short ton	8	Percentages		
	from Canada	from U.S.A.	from Europe	TOTAL	from Canada	from U.S.A.	from Europe
1915	367	1,184	1	1,552	24%	76	0
1925	1,315	1,507	133	2,955	45%	51	4
1930	2,145	1,272	134	3,551	60%	36	4
1935	2,122	911	197	3,230	66%	28	6
1940	2,741	998	34	3,773	73%	26	1
1945	2,666	707	nil	3,373	79%	21	0
1946	3,563	754	13	4,330	82%	18	0
1949	4,380	884	255	5,519	79%	16	5
1951	4,784	1,108	206	6,098	79%	18	3
1952	4,855	1,065	190	6,110	79%	18	3
1953	4,861	1,037	164	6,062	80%	17	3
1954	4,875	1,085	140	6,100	80%	18	2
1955	5,025	1,270	125	6,420	78%	20	2

Sources: Supply from Canada is the amount of shipments reported by Canadian mills to NAC, from U.S. is the amount of shipments from U.S. mills reported to NSB less exports and from Europe is taken from reports of the U.S. Department of Commerce.

## CONSUMPTION OF WASTE FIBROUS MATERIALS BY U.S. MILLS

(In Thousands of Tons)

	Waste		Straw, Flax and		
	Paper	Rags	Other	Total	
1939	4,366	468	692	5,526	
1944	6,859	428	957	8,245	
1946	7,278	403	980	8,660	
1947	8,009	462	1,064	9,535	
1948	7,649	425	1.075	9,149	
1949	6,600	382	833	7,815	
1950	7,956	442	998	9,395	
1951	9,070	389	1,055	10,523	
1952	7,881	325	871	9,007	
1953	8,530	325	930	9,785	
1954	8,064	317	895	9,276	
1955	8,976	343	976	10,295	

Source: Pulp and Paper Sec., Forest Products Div., Office of Domestic Commerce and NPA, Pulp, Paper, and Paperboard Div.

## NEWSPRINT PAPER CONSUMPTION —U. S.

	Population	Newsprint Tons	Paper Used Per Capita Lbs.
1924	113,090,000	2,737,000	48.4
1930	123,091,000	3,563,000	57.9
1935	127,521,000	3,300,000	51.7
1940	132,817,000	3,730,000	56.2
1944	138,101,000	3,250,000	47.1
1945	139,621,000	3,480,000	49.8
1946	141,229,000	4.296,000	60.8
1947	143,382,000	4.753,000	66.3
1948	146,116,000	5,141,000	
1949	149,215,000	5,529,000	
1950	151,376,000	5,937,000	
1952	155,300,000	5,988,000	
1953	160,873,000	6,143,000	
1954	162,400,000	6,150,000	
1955	167,181,000	6,638,000	

## U. S.—ALL PAPER OTHER THAN PAPERBOARDS

#### (In Thousands of Tons)

	(						
				Consur	nption Lbs.		
	Produced	Imp'ts	Exp'ts	Tons	ner Capita		
1899	1,773			1.773	47		
1914	3,860	349	106	4.103	84		
1924	5,079	1.445	100	6,424	113		
1934	5,173	2,252	114	7.311	116		
1941	9,362	3,086	317	12,131	182		
1947	10,705	4,060	297	14,468	201		
1949	10,349	4.681	226	14,804	198		
1950	12,066	4,922	225	16,763	221		
1952	12,194	5,106	388	16,911	217.1		
1953	12,703	5,106	257	17,552	219.9		
1954	12,970	5.091	389	17.673	217.6		
1955	14,346	5,248	414	19,180	229		

Source: A.P.P.A., Census Bureau

#### U. S. BOOK PAPER

#### (In Thousands of Tons

(	In Thou	sand:	of T	ons)	
				Consu	mption Lbs. per
P	roduced	Imp'ts l	Exp'ts	Tons	Capita
1899	304			304	8
1914	795	6	14	788	16
1924	1,050	14	10	1,053	18
1934	1,055	4	12	1,047	16
1941	2,025	28	51	2,002	30
Beginning	1941, t	ext par	pers al	located	to fine
papers. 1947	2,207	74	76	2,206	31
Beginning with Book Paper.	1948 C Paper. (	Groundy	vood P	apers i	ncluded ll Other
1949	2.972	28	41	2,965	40
1950	3,303	38	27	3,314	44
1952	3,387	48	66	3,369	43
1953	3,593	45	26	3,612	45
1954	3,583	44	41	3,586	44
1955	3,871	41	51	3,861	46.8

Source: A.P.P.A., Census Bureau

#### U. S.—NEWSPRINT

#### (In Thousands of Tons)

	Dandered	T	F		Lbs. per
	Produced	1mp ts	Exp 13	Tons	Capita
1899	569			569	15
1914	1,313	278	44	1.547	32
1924	1,481	1,357	17	2,821	50
1934	989	2,209	23	3,175	50
1941	1,043	2,982	70	3,956	60
1947	833	3,957	28	4,762	66
1949	918	4,640	39	5,519	74
1950	1,013	4,863	44	5,832	77
1951	1,106	4,968	71	6.004	78
1952	1,106	5,033	105	6,034	78
1953	1,068	5,004	47	6,086	76
1954	1,191	4,992	140	6,043	74
1955	1,458	5,159	207	6,638	

Source: Census Bureau, A.P.P.A.

#### U. S .- TISSUE PAPERS (In Thousands of Tons)

	Produced	Imp'ts	Exp'ts		rumed Lbs. per Capita
1899	28			28	1
1914	115			115	2
1924	242	6	4	244	4
1934	397	8	7	398	6
1941	912	.07	25	889	13
1947	1,088	1	18	1,071	15
1949	1,195	1.4	21	1,175	16
1950	1,374	.5	18	1,356	18
1952	1,357	.2	17	1,340	17
1953	1,488	1.9	22	1,467	18.4
1954	1,561	1.8	22	1,540	19
1955	1,685	1.8	24.1	1,662	20.1

Source: A.P.P.A., Census Bureau

#### **U. S. FINE PAPERS**

#### (In Thousands of Tons)

	Produced	Imp'ts	Exp'ts		rumed Lbs. per Capita	
1899	131			131	3	
1914	269		3	266		
1924	422	1.3	4	419	5 7 7	
1934	434	.8	10	425	7	
1941	950	2	46	903	14	
194	1,171	.6	68	1,103	15	
1949	1,015	.6	48	967	13	
1950	1,199	1.4	41	1,159	15	
1952	1,295	1.7	47	1,249	16	
1953	1,289	2.4	40	1,242	15	
1954	1,324	2.3	47	1,279	16	
1955	1,454	2.3	42	1,280	16	

From 1899 to 1940 inclusive, only writing and cover were in fine papers. Beginning 1941, text papers (from book), bristol (from paperboard), and "thin papers" (from tissue) have been added.

Source: American P. & P. Assn., Census Bureau.

#### U. S .- ALL OTHER PAPER

#### (In Thousands of Tons)

			Consumed Lbs. per		
	Produced 1	Imp'ts E	xp'ts	Tons	Capita
1899	53			53	1.4
1914	107	46	37	116	2.3
1924	129	31	40	120	2.1
1934	298	14	22	290	4.6
1943	296	3	15	283	4.2
1947	389	3	38	354	4.9
1949	338	3	35	306	4.1
1950	460	5	14	450	5.9
1952	513	10	24	499	6.4
1953	538	12	27	523	6.6
1954	526	13	33	505	6.2
1955	642	27	41	628	7.6

Source: American P. & P. Assn.-Up to 1948, included groundwood. Since then, groundwood included in book.

#### U. S. COARSE PAPERS

#### (In Thousands of Tons)

					umed bs. per
	Produced	Imp'ts	Exp'ts	Tons	Capita
1899	535		***	535	14
1914	911	18	7	922	18.8
1924	1,235	25	18	1,242	22
1934	1,356	5	32	1,329	21
1943	2,262	1	49	2,213	32
1947	2,903	22	51	2,874	40
1949	2,758	6	56	2,708	36
1950	3,286	11	73	3,324	43
1952	3,235	10	121	3,124	40
1953	3,397	35	86	3,371	42
1954	3,429	36	95	3,369	42
1955	3,715	40	120	3,635	44.1

Source: A.P.P.A., Census Bureau

#### U. S. PULPWOOD STATISTICS Receipts—Consumption—Inventories

(In Thousands of Cords)								
Yr.		Domestic	Imports	Total	Consum.	Invent.		
1941		14,177	2,281	16,458	16,580	3,729		
1943		13,581	1,712	15,293	15,645	2,846		
1947		18,529 17,547	2,084 1,706	20,613 19,252	19,714 19,916	4,563		
1950		20,712	1,834	22,546	23,627	3,615		
1951			2,650	27,778 27,358	26,522	5,072 5,949		
1953 1954			1,548	27,887 28,597	28,150 29,201	5,650		
1955		20 004	1,928	32,822	33,332	4,745		

Source: Bureau of the Census; except 1941-1943, by War Production Board; 1951-52—NPA, Pulp, Paper & Board Div.

### U. S. BOARD PRODUCTION

## (U. S. Department of Commerce-in Thousands of Tons)

	Paper- board*	Wet Machine Board	Building Board
1946	8,396	138	956
1949	8,992	125	839
1950	10,803	144	1,259
1952	10,772	139	1,314
1953	12,275	152	1,379
1954	12,047	132	1,507
1955	13,749	151	1.650
*Container	boards, box	k boards,	cardboard

and other.

\*Shoe board, binder board and other.

#### **U. S. BUILDING BOARDS PRODUCTION**

	Wall-	Insulating	
	board	board	Total
Year	(Tons)	(Tons)	Tons
1941	254,477	362,033	616,510
1948	364,562	905,786	1,270,348
1949	216,530	622,199	839,000
1950	381,201	838,367	1,220,000
1951	343,552	925,744	1,269,296
1952	435,154	879,655	1,314,809
1953	423,418	955,872	1,379,290
1954	493,258	1,013,740	1,506,998
1955	537,125	1,114,973	1,652,098

Source: U. S. Dept. of Commerce (Pulp and Paper Section).

#### UNITED STATES PAPERBOARD PRODUCTION

#### (In Tons of 2,000 lbs.)

	Container Board	Folding Boxboard	Setup Boxboard	Building Boards	Other Boards	Total Paperboard
1940	3,434,834	1,416,452	898,549	179,443	449,796	6,379,074
1945	4,131,107	2,092,344	721,087	894,830	1,074,368	8,913,736
1948	5,078,929	2,199,608	596,190	1,270,348	1,629,605	10,775,454
1949	4.681,054	2,084,415	617,249	838,729	1,734,757	9,966,542
1950	5,646,433	2,368,010	641.345	1,258,620	2,292,071	12,311,030
1952	5,766,462	2,192,903	687,599	1,314,809	2,263,847	12,225,620
1953	6,613,206	2,428,988	763,166	1,379,290	2,621,053	13,805,703
1954	6,432,250	2,484,725	710,302	1,506,998	2,551,760	13,686,035
1955	7,550,000	2,644,000	781,000	1,650,000	2,926,000*	15.551,000
This includes	1 050 000 4	ft-1 f.			manadarah anhiah	industry of

°—This includes 1,050,000 tons of special food board—a fast growing product which industry observers say is the field to watch. Production has more than doubled since 1946. Here are figures: 1946—434,000 tons; 1947—460,000 tons; 1948—443,000 tons; 1949—516,000 tons; 1950—655,000 tons; 1951—772,000 tons; 1952—799,000 tons; 1953—968,000 tons; 1954—941,000 tons. Source: American Paper and Pulp Assn.

#### U. S. PAPERBOARD STATISTICS

(In Tons of 2,000 lbs.)

Year-	Production	Imports	Exports	Consumption	Per Capita Consumption Lbs.
1899	394.111			394.111	10.5
1909	883,088			883.088	19.5
1919	1.867.064	44.461	61,890	1.849.635	35.2
1929	4.451.187	42,351	94,374	4,399,164	72.4
1939	6,025,494	28,728	113,571	5,940,651	90.8
1945	8,913,736	51,189	155,020	8,809,905	126.2
1948	10,775,454	75,072	170,837	10,679,689	145.7
1949	9,966,542	70,309	146,026	9,890,825	132.6
1950	12,311,030	85,850	146,168	12,250,712	161.5
1952	12,219,112	83,759	172,535	12,101,532	155.4
1953	13,862,602	124,947	217,359	13,770,190	172.5
1954	13,686,035	98,317	297,717	12,486,635	166.1
1955	15,551,000	111,692	321,669	15,341,023	186.2

Source: American Paper and Pulp Assn., Census Bureau.

#### UNITED STATES PAPERBOARD PRODUCTION AND CAPACITY-1925-1955 (in tons)

Year		Total		CONTAIN	ERBOARD			В	OXBOARD		
Year	Capacity	Production	Total	Liners	Corrugating Materials	Chip and Filler Board	Total	Folding	Set-Up	Special Food Board	All Other Paperboar
1925	4,807,700	3,125,000	1,470,900	782,800	281,000	407,100	1,654,100	707,900	639,900		306, 30
1926	5,057,800	3,388,700	1,618,000	862,790	322,100	433, 200	1,770,700	736,100	617,600		417,00
1927	5, 195, 700	3,481,100	1,662,700	865,000	325,600	472,100	1,818,400	796,300	547,000		475,10
1928	5,692,900	3,871,200	1,840,500	997,600	360,300	482,600	2,030,700	906,600	650,300	i i	473,80
1929	5,941,100	4,277,600	2,005,800	1,117,900	406, 400	481,500	2,271,800	956,600	657,900		657,30
Avg '26-'29	5,471,875	3,754,650	1,781,750	960,800	353,600	467,350	1,972,900	848,900	618,200		505, 80
1930	5,995,600	3,957,100	1,875,600	1,087,300	385, 600	402,700	2,081,500	928,800	601,900		550, 80
1931	5,943,800	3,804,000	1,815,000	1,071,900	383,800	359,300	1,989,000	921,000	554,600		513, 40
1932	6,036,000	3,319,800	1,619,600	965, 600	373,000	281,000	1,700,200	788,700	479,900		431,60
1933	6, 252, 100	3,938,800	1,978,900	1,214,500	459,800	304,600	1,959,900	895,300	551,600		513,00
1934	6,496,100	3,962,600	1,986,100	1,227,900	483,000	275, 200	1,976,500	937,900	506,000		532, 60
1935	6,798,500	4,555,000	2,309,000	1,440,800	587,200	281,000	2,246,000	1,047,100	531,100		667,80
1936	7,211,800	5, 336, 700	2,738,200	1,704,800	698,700	334,700	2,598,500	1,212,200	587,700		798,6
1937	7,309,900	5, 555, 500	2,880,500	1,800,000	737,500	343,000	2,675,000	1,237,800	570,000		867, 20
1938	7,839,200	4,938,700	2,479,800	1,552,000	673,500	254,300	2,458,900	1,162,400	518,800		777.70
1939	7,834,100	5,953,900	3,000,300	1,877,900	837,900	284,500	2,953,600	1,385,000	585,700		982,90
Avg '30-'39	6,771,710	4, 532, 210	2,268,300	1,394,270	562,000	312,030	2,263,910	1,051,620	548,730		663, 56
1940	8,007,700	6,326,100	3,147,600	1,965,900	903,400	278,300	3,178,500	1,413,100	613,200		1,152,20
1941	8,588,900	7,901,800	4,044,400	2,560,900	1,132,600	350,900	3,857,400	1,749,300	731,500		1,376,6
1942	8,528,200	7,163,700	3,607,300	2,272,200	932,100	403,000	3,556,400	1,440,500	615,900	325,000	1,175,0
1943	8,238,900	7,662,200	3,939,300	2,493,100	1,029,700	416,500	3,722,900	1,612,700	599,000	385,300	1,125,9
1944	8,561,200	7,961,900	4,123,100	2,598,200	1,089,900	435,000	3,838,800	1,660,700	543,100	386,500	1,248,5
1945	8,535,700	7,938,200	4,099,800	2,590,800	1,111,500	397,500	3,838,400	1,722,200	511,600	400,000	1,246,5
Avg '40-'45	8,410,100	7,492,317	3,826,917	2, 413, 517	1,033,200	380,200	3,665,400	1,599,750	602,383	374, 200**	1,213,8
1946	8,846,300	8, 492, 400	4, 313, 700	2,721,800	1,263,100	328,800	4,178,700	2,109,000	474,100	445,600	1,150,0
1947	9,455,500	9,360,900	4,888,400	3,137,600	1,420,300	330,500	4,472,500	2,096,500	601,500	460,800	1,313,7
1948	10,092,800	9,588,200	4,960,300	3, 251, 600	1,387,300	321,400	4,627,900	2,066,400	639,500	443,400	1,478,6
1949	11,096,000	9,209,700	4,623,100	3,004,100	1,349,200	269,800	4,586,600	2,010,100	662,500	515,600	1,398,4
Avg '46-'49	9,872,650	9,162,800	4,696,375	3,028,775	1,354,975	312,625	4,466,425	2,070,500	594, 400	466,350	1,335,1
1950	11,861,200	11,149,500	5, 692, 600	3,709,000	1,670,000	313,600	5,456,900	2,358,100	729,800	705,000	1,664,0
1951	12,650,200	11,891,200	6,207,900	4,043,900	1,806,000	358,000	5,683,300	2,341,800	681,900	810,600	1,849,0
1952	12,990,100	11,041,600	5,637,600	3,682,800	1,625,800	329,000	5, 404, 000	2,186,400	635,300	834,800	1,747.5
1953	13,461,200	12,518,900	6, 440, 400	4,209,200	1,896,500	334,700	6,078,500	2,382,500	680,300	961,400	2,054,3
1954	13,932,800	12,260,900	6, 265, 400	4,110,800	1,876,700	277,900	5,995,500	2,351,900	610,200	999,800	2,033,6
1955	14,505,100	14,011,300	7, 283, 300	4,799,600	2,165,400	318,300	6,728,000	2,577,400	653,700	1.137.900	2,359,6

<sup>\*</sup> Special Food Board Tonnage 1925 - 1941 included with Folding and All Other. See Page 10.
\*\* Average based on 4 years.

Source: NATIONAL PAPERBOARD ASSOCIATION

#### UNITED STATES KRAFT, SEMI-CHEMICAL AND ALL OTHER PAPERBOARD PRODUCTION-1952-1955 (in tons)

	KRAFT PAPE	RBOARD	SEMICHEMICAL I	PAPERBOARD	ALL OTHER PA	PERBOARD
YEAR	Tons	Percent	Tons	Percent	Tons	Percen
1925	20,700	. 7	4,800	.1	3,099,500	99.2
1926	39,500	1.2	5,400	. 1	3,343,800	98.7
1927	82.100	2.4	12,000	. 3	3,387,000	97.3
1928	173.400	4.5	24,900	. 6	3,672,900	94.9
1929	242,200	5.7	53,800	1.2	3,981,600	93.1
Avg '26-'29	134,300	3.6	24,025	. 6	3,596,325	95.8
1930	294,100	7.4	70,000	1.8	3.593.000	90.8
1931	403.900	10.6	76.500	2.0	3,323,600	87.4
1932	452,600	13.6	65,900	2.0	2,801,300	84.4
1933	581,700	14.8	82,400	2.1	3,274,700	83.1
1934	626,700	15.8	85,000	2.2	3,250,900	82.0
1935	728,200	16.0	100,600	2.2	3,726,200	81.8
1936	878,400	16.4	115,300	2.2	4,343,000	81.4
1937	978.800	17.6	124.500	2.3	4,452,200	80.1
1938	1,161,900	23.5	100,100	2.0	3,676,700	74.5
1939	1,480,000	24.9	131,000	2.2	4,342,900	72.9
Avg '30-'39	758,630	16.7	95,130	2.1	3,678,450	81.2
1940	1,693,200	26.8	133.600	2.1	4.499.300	71.1
1941	1,998,500	25.3	201,400	2.5	5.701.900	72.2
1942	1,958,600	27.3	150.800	2.1	5,054,300	70.6
1943	1,859,900	24.3	247.500	3.2	5,554,800	72.5
1944	1,916,000	24.1	331.100	4.1	5,714,800	71.8
1945	1,976,200	24.9	300,800	3.8	5,661,200	71.3
Avg '40-'45	1,900,400	25.4	227.533	3.0	5,364,383	71.6
1946	2,032,600	23.9	398,600	4.7	6,061,200	71.4
1947	2,419,500	25.8	505,800	5.4	6,435,600	68.8
1948	2,816,500	29.4	486,400	5.1	6,285,300	65.5
1949	3,067,300	33.3	535,600	5.8	5,606,800	60.9
Avg '46-'49	2,583,975	28.2	481,600	5.3	6,097,225	66.5
1950	3,872,900	34.7	732,900	6.6	6,543,700	58.7
1951	4,115,200	34.6	853,000	7.2	6,923,000	58.2
1952	4,141,300	37.5	857,900	7.8	6,042,400	54.7
1953	4,829,100	38.6	1,056,000	8.4	6,633,800	53.0
1954	4,818,400	39.3	1,119,700	9.1	6,322,800	51.6
1955	5,659,800	40.4	1.329.200	9.5	7.022.300	50.1

Source: NATIONAL PAPERBOARD ASSOCIATION

#### VALUE OF SALES IN U. S. INDUSTRY AND BY WHOLESALERS

Year	By Pulp, Paper, Board and Products Industries Millions of dollars	By Wholesale Distributors of Paper and Its Products Millions of dollars
1939	\$1,785	\$575
1941	\$2,836	\$739
1943	\$3,389	\$833
1945	\$3,725	\$909
1947	\$5,764	\$1,828
1949	\$5,448	\$1,723
1950	\$6,671	\$2,013
1951	\$8,432	\$2,400
1952	\$8,023	\$2,195
1953	\$8,701	\$2,587
1954	\$8,738	\$2,681
1955	\$9,850	\$3,490

Source: U. S. Dept. of Commerce.

#### AVERAGE HOURLY EARNINGS U. S. PULP AND PAPER INDUSTRY VS. U. S. FACTORY AVERAGE

June 1939.     \$ .618     \$ .631       June 1941.     .716     .732       June 1943.     .851     .959       June 1945.     .906     1.038       June 1947.     1.232     1.244       Dec. 1947.     1.289     1.245       June 1948.     1.368     1.340       June 1949.     1.410     1.405		Pulp and paper Hourly earnings	U. S. Factory Hourly earnings
June 1941     .716     .732       June 1943     .851     .959       June 1945     .906     1.038       June 1947     1.232     1.244       Dec. 1947     1.289     1.245       June 1948     1.368     1.340       June 1949     1.410     1.405	une 1939	\$ .618	\$ .631
June 1943.     .851     .959       June 1945.     .906     1.038       June 1947.     1.232     1.244       Dec. 1947.     1.289     1.245       June 1948.     1.368     1.340       June 1949.     1.410     1.405			.732
June 1945     .906     1.038       June 1947     1.232     1.244       Dec. 1947     1.289     1.245       June 1948     1.368     1.340       June 1949     1.410     1.405		.851	.959
June 1947     1.232     1.244       Dec. 1947     1.289     1.245       June 1948     1.368     1.340       June 1949     1.410     1.405		.906	
Dec.     1947     1.289     1.245       June     1948     1.368     1.340       June     1949     1.410     1.405		1.232	1.244
June 1948 1.368 1.340 June 1949 1.410 1.405			1.245
June 1949 1.410 1.405			1.340
Tune 1950 1.406 1.453	June 1950	1.466	1.453
			1.543
			1.599
			1.636
			1.650
			1.730
June 1953 1.78 1.76			
Dec. 1953 1.83 1.79			
June 1954 1.83 1.81			
Dec. 1954 1.88 1.83			
Dec. 1955 1.99 1.82			

Source: U. S. Bureau of Labor Statistics

## **LEADING WOODPULP STATES**

(in short tons)	
State	1953*
1st Washington	2,158,318
2nd Florida	1,675,065
3rd Louisiana	1,480,229
4th Georgia	1,372,386
5th Maine	1,226,213
6th Mississippi	1,098,434
7th Wisconsin	1,073,017

<sup>o</sup> Latest available by U.S. Pulp Producers Assn.

#### TOTAL UNITED STATES PRODUCTION OF WOODPULP

	f 2000 pounds)			
ached Bleached fite Sulfite	Total Sulfate	Groundwood	Soda	All Other
,510 612,576	409,768	1,612,019	472,647	64,697
,947 944,620	1,467,749	1,355,819	417,724	104,810
700 1,612,089	3.747.992	1.632,727	532,387	438,664
,066 1,717,206	4,738,266	1,869,862	462,065	782,965
,928 1,523,221	4,548,810	1,769,287	412,755	991,442
,391 1,692,077	4,588,016	1.951.456	476,211	1,114,376
,814 1,909,402	6,013,696	2,175,107	509,864	1,362,409
,263 1,829,021	5,977,281	1.960,496	492,194	1,205,531
,895 2,107,541*	• 7,501,429	2,215,883	522,221	1,719,606
,916 2,378,692°	8,576,298	2,476,635	446,483	1,861,362
,453 1,691,523	8,568,704	2,379,740	425,415	2,028,111
,958 1,728,648	9,444,816	2,342,929	427,546	2,999,398
1,800,734	9,807,982	2,428,550	431,603	3,290,150
3,826 1,909,006	3 10,921,909	2,704,455	440,454	2,852,000
The second secon	ached fite Sulfite 510 612,576 ,947 944,620 ,700 1,612,089 ,066 1,717,206 ,928 1,523,221 ,391 1,692,077 ,814 1,909,402 ,263 1,829,021 ,895 2,107,541 ,916 2,378,692 ,453 1,691,523 ,958 1,728,648 ,156 1,800,734	fite Sulfate Sulfate  ,510 612,576 409,768 ,947 944,620 1,467,749 ,700 1,612,089 3,747,992 ,066 1,717,206 4,738,266 ,928 1,523,221 4,548,810 ,391 1,692,077 4,588,016 ,814 1,909,402 6,013,696 ,263 1,829,021 5,977,281 ,895 2,107,541* 7,501,429 ,916 2,378,692* 8,576,298 ,453 1,691,523 8,568,704 ,958 1,728,648 9,444,816 ,156 1,800,734 9,807,982	ached fite         Bleached Sulfite         Total Sulfate         Groundwood           .510         612,576         409,768         1,612,019           .947         944,620         1,467,749         1,355,819           .700         1,612,089         3,747,992         1,632,727           .066         1,717,206         4,738,266         1,869,862           .928         1,523,221         4,548,810         1,769,287           .814         1,909,402         6,013,696         2,175,107           .263         1,829,021         5,977,281         1,960,496           .895         2,107,541*         7,501,429         2,215,883           .916         2,378,692*         8,576,298         2,476,835           .453         1,691,523         8,568,704         2,379,740           .958         1,728,648         9,444,816         2,342,929           .,156         1,800,734         9,807,982         2,428,550	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$

Note: Not included are 983,444 tons of dissolving pulp.

Source: U. S. Bureau of the Census revised 1953 figures issued June 1954.

Note: Through 1939, "exploded" wood pulp is included in Groundwood and thereafter in "All Other." 1933 through 1936 data on Soda are estimated from United States Bureau of the Census combined data for Soda and Semichemical pulp. Bleached and Semi-Bleached Sulfate totaled 7,055,609 tons in 1953; 6,485,860 in 1952. Semi-chemical Pulp totaled 1,028,721 tons in 1953; 828,917 in 1952. • Includes dissolving grades of bleached sulfate.

#### U. S. WOODPULP IMPORTS FROM EUROPE

(In Short Tons)

	Sweden	Finland	Norway	Austria	Czech.	France	Ger.	Switz.	Total ••
1945°	672,261	0	0	0	0	0	0	0	672,261
1946	445,114	115,220	0	0	0	0	0	0	560,334
1947	555,215	223,973	9,577	0	0	0	0	0	793,693
1948	384,576	175,900	13,218	1,696	0	0	0	0	575,390
1949	265,621	148,903	29,208	4,459	1.027	0	0	0	449,218
1950	398,814	205,651	28,958	21,005	2,597	115	977	89	668,146
1952	189,613	145,630	21,168	2,430	0	124	169	0	359,138
1953	334.813	160,216	36,777	9,996	0	211	588	0	542,601
1954	224,471	132,792	14,997	0	0	50	0	0	372,310
1955	189,865	144,575	13,696	54	0	55	0	0	348,191

The 1945 figure is for only 6 mos., when shipping reopened after the war.
 Includes 167 tons from Italy in 1950; 4,928 tons from Russia in 1947 and 9,773 tons from Russia in 1950; 4 tons from Australia in 1952.

#### U. S. IMPORTS OF EUROPEAN WOODPULP BY GRADES

(Short Tons)

	Bleach	ned Sulfite		Sui			
	Paper Grades	Non-Paper Grades	Unblich'd Sulfite	Bleached Sulfate	Unbl'ch'd Sulfate	Groundwood	Total
1946	27,541	12,417	207,059	23,484	260,434	29,399	560,334
1949	90,008	4.145	135,229	68,397	130,897	19,065	449,218
1950	115.020	8.262	163,975	86,548	257,160	34,618	668,146
1952	59,774	3.317	125,623	70.568	72,103	27.529	359,138
1953	99,459	1,291	126,075	119.722	138,013	56,669	543,903
1954	41.955	2.230	73,451	95.681	117,470**	37,328	372,310
1955	35,184	347	67,623	80,163	116,865	32,106	348,191

Source: Department of Commerce

Includes screenings and soda.

•• Includes 13,260 tons semi-bleached.

#### REGIONAL ORIGIN OF SALES OF DOMESTIC MARKET PULP IN U. S. All Grades Except Defibrated—Tons of 2,000 lbs.—Showing imported and domestic supply for consumers

Year		Pacific	South	New England	Lake	Mid- Atlantic	Total U.S.	Mkt. Pulp Imports	Total Supply
	(Tons)	727,135	227,770	218,451	96,705	69,732	1,339,793	1,883,157	3,222,950
	(Percent)	22.6%	7.0%	6.7%	3.0%	2.1%	41.57%	58.43%	100%
1948	(Tons)	801,842	230,744	188,527	95,559	60,920	1,377,592	1,739,120	3,116,712
1948	(Percent)	25.2%	7.2%	5.84%	2.96%	1.08%	42.28%	57.72%	100%
	(Tons)	751,267	184,482	165,815	59,801	45,526	1,206,891	1,304,326	2,511,217
	(Percent)	29.9%	7.4%	6.6%	2.4%	1.8%	48.1%	51.9%	1009
1950	(Tons)	888,957	312,490	217,496	79,665	60,201	1,558,809	1.910.917	3,469,726
1950	(Percent)	25.6%	9.0%	6.3%	2.3%	1.7%	44.9%	55.1%	1009
1951	(Tons)	922,006	408.417	212,446	84,547	72,912	1,700,328	1.831.718	3,532,046
1951	(Percent)	26.1%	11.5%	6%	2.4%	2.1%	48.1%	51.9%	1009
1952	(Tons)	856,855	434,772	203,910	69,588	43.412	1,608,537	1,400,534	3,009,071
	(Percent)	28.5%	14.5%	6.8%	2.3%	1.4%	53.5%	46.5%	1009
1953	(Tons)	859,425	517.747	192,855	51,243	20,217	1,641,487	1,578,444	3,219,931
1953	(Percent)	26.7%	15.1%	6.0%	1.6%	0.6%	51.0%	49.0%	1009
1954	(Tons)	923,395	546,439	189,348	45.335	22,850	1,727,367	1,486,150	3,213,517
1954	(Percent)	28.8%	17.0%	5.9%	1.4%	0.7%	53.8%	46.2%	1009
1955		1.061,563	743,301				2,108,696	1,610,432	3,719,128
1955	(Percent).	51%	35%	209,073 10%	69,129	25,630	2,100,090	1,010,432	1009

Source: U. S. Pulp Producers Assn., Inc.

#### TYPICAL PULP PRICES IN THE UNITED STATES (Prepared especially by PULP & PAPER)

Before World War II—Under OPA Regulation (1944 and 1946 allowed increases are shown)—and in recent years. Specially prepared authentic table for this WORLD REVIEW.

Swedish and Norwegian prices are N. Y. Dock prices; U. S. and Canadian are "Delivered" and Maximum Freight Allowances are noted.

	Domestic Bleached Kraft	Canadian Bleached Kraft	Swedish Unbl'ched Kraft	Swedish Bleached Sulfite	Domestic Bleached Sulfite		Norway Bleached Sulfite	Canada Unbl'ched Sulfite	Swedish Unbl'ched Sulfite
1939	_	- Common	\$28	\$43	\$50	_		-	\$36
1944	-	-	\$69	\$82	\$86	\$86	constr	\$75	\$70
1946	_	Games,	\$79	\$91	\$94	\$94	-	\$82	\$79
Apr. 1949	\$136	\$136	\$112	\$132	\$126	\$130	\$125	\$118	\$122
June 1951	\$135 to \$200 (1)	\$195 (2)	\$225	\$250 to \$290	\$135 to \$165	\$160 (2) to \$175 (2	\$250	6000	\$225 to \$265
June 1952	\$142 (3) to \$167 (4)	\$190 to \$190 (1)	\$145 to \$150	\$175 to \$182.50	\$140 (3)	\$160 to \$165	\$175 to \$180	\$150	\$155 to \$160
May 1953		\$145 to \$155	\$100 to \$125	\$130 to \$135	\$140	\$140 to \$145	\$140 to \$145	\$130 to \$135	\$110 to \$125
May 1954	\$140 to \$147.50	\$145 to \$150	\$105 to \$110	\$135 to \$140	\$140	\$140	\$135 to \$142.50	\$120	\$115 to \$122
July 1955	\$150	\$150	\$110 to \$115	142.50 to \$145	\$145	\$145	\$140 to 142.50	\$125	\$125 to \$128
July 1956	\$152 to \$155	\$152 to \$155	\$125	\$150 to \$155	\$150	\$150	\$150 to \$155	\$130	\$130
	mum Freig \$12.50 (		ces: 3) \$18,50	(4) \$15.00	),				

#### UNITED STATES WOODPULP PRODUCTION-1954 vs. 1955

	TOTAL V	VOODPULP, ALL	GRADES %	MARKET	WOODPULP, ALL	L GRADES %	
	1954	1955	Change	1954	1955	Change	
Capacity	21,038,542	22,407,489	+6.5				
Production	18,333,153	20,827,562	+13.6	2,159,236	2,703,000	+39.7	
Imports	2,050,796	2,212,966	+7.9	1,486,150	1,610,000	+8.3	
Canada				1,113,800	1,262,187	+13.5	
Europe				372,350	348,191	-6.5	
Exports	443,870	632,914	+42.6	438,542	633,000	+44.	
New Supply	19,940,079	22,407,614	+12.4	3,206,844	3,680,000	+14.7	
Consumption	19,899,958	22,456,166	+12.8	3,159,138	3,680,000	$\pm 13.3$	
In Paper and Board		21,485,366	+12.9	2,420,438	2,855,000	+17.9	
In Non-Paper	868,700	970,800	+11.7	738,700	825,000	+11.7	
Inventory Dec. 31st							
At Pulp Mills At Non-Paper Mills	157,374	131,633	-16.4				
(not 100%)	517,676	520,074	+1.6				

Total imports are slightly larger than market pulp imports because they include imports to paper mills from their own mills in Canada and for their own use. (Source: U.S. Pulp Producers)

#### U.S. IMPORTS OF NORTH AMERICAN WOODPULP BY GRADES

(In Short Tons)

Includes: Canada, Newfoundland, Labrador, Mexico

	Bleache	d Sulfite							
	Paper	Non-Paper	Unbl'ch'd	Sulfate		Groundwood			
	Grades	Grades	Sulfite	Bleached	Unbleached	Bleached	Unbleached	Soda	Total
1946 1949 1950 1952 1953 1954	195,112 241,280 288,014 215,296 234,079 246,441	189,775 149,801 229,092 220,010 254,232 228,143	411,512 256,993 364,531 306,929 254,364 265,957	56,213 323,212 366,047 448,467 470,502 551,484	137,472 117,917 183,238 135,768 154,580 152,382*	538 15,548 31,622 57,298	220,823 188,620 228,627 183,089 145,368	19,740 27,315 33,947 28,071 34,883	1,245,131 1,313,325 1,717,035 1,581,214 1,613,684
1955	338,932	204,709	290,850	556,366	165,171	51,253 40,835	147,975	37,936	1,688,410

 Includes 11,324 tons semi-bleached. Source: Department of Commerce

#### U. S. WOODPULP EXPORTS

	Tons	Value
1930	48,426	\$ 2,070,553
1935	171,710	\$ 8,632,971
1939	139,504	\$ 6,493,140
1940	480,938	\$29,736,737
1943	300,700	\$20,288,879
1946	39,361	\$ 3,645,963
1949	122,133	\$14,082,575
1950	95,693	\$12,056,311
1952	198,685	\$32,215,417
1953	161,687	\$22,793,371
1954	441,863	\$62,337,237
1955	632,914	\$87,491,601

Source: U. S. Department of Commerce and U. S. Pulp Producers Assn.

#### U. S. PRICES OF COTTON LINTERS PULP **Dollars Per Short Ton**

	Annual Average	Low	High
1948	225.00	187.00	260.00
1949	172.00	160.00	187.00
1950	337.00	187.00	546.00
1951	459.00	316.00	554.00
1952	288.00	223.00	316.00
1953	235.60	223.00	250.00
1954	210.00	210.00	210.00
1955	210.00	210.00	210.00
1956		206.00 to 220.00	

U. S. Dept. Agric.—Regional Research Lab. Source: U. S. Pulp Producers Assn., Inc.

#### U. S. PULP IMPORTS

Year	Chemical Tons	Value	Ground- wood Tons	Value
1925	1,332,522	\$ 73,317,337	331,092	\$ 8,517,116
1930	1,530,985	\$ 73,962,977	299,256	\$ 7,146,290
1936	2.049,722	\$ 78,785,004	227,778	\$ 4,051,224
1940	1.053.057	\$ 55,474,094	170,909	\$ 4,712,649
1945	1,526,647	\$106,858,690	227,418	\$ 8,936,177
1947	2,016,153	\$238,126,318	290,514	\$18,032,673
1949	1.554.320	\$168,910,921	208,782	\$12,099,373
1950	2,098,667	\$224,358,923	286,308	\$15,802,852
1951	2.046.311	\$324,280,192	321,178	\$26,414,059
1952	1,693,726	\$252,803,232	242,006	\$18,242,571
1953	1.894,216	\$244,670,888	263,630	\$18,445,508
1954	1.807.897	\$251,595,502	242,865	\$17,593,083
1955	1,958,422	\$253,729,802	254,524	\$18,620,449

Source: U. S. Pulp Producers Assn. and U. S. Dept. of Commerce.

#### **PULP PRODUCTION BY REGIONS** (with figures as available for certain states)

10500

1955
1,556,167
1,226,213
976,742
585,113
81,582
380,047
1,484,170
69,703
60,519
280,931
1,073,017
502,137
5,801,546
817,330
838,366
1,372,386
1,675,065
1,909,879
1,098,434
2,182,048
1,480,229
3,124,608
2,158,318
650,007

#### U. S. PACIFIC COAST STATES PULP PRODUCTION

Tons of 2,000 lbs. (except defibrated, exploded, and similar pulps)

	and commercial								
1923		299,596	1943		1,521,531				
		378,005	1945		1,591,789				
1929		780,494	1947		2,005,089				
		817,548			2,078,526				
		607,662	1950		2,417,998				
1933		773,102	1951		2,768,848				
1935			1952		2,766,277				
		1,523,191	1953						
					3,043,419				
1041		1 994 150	1955		3.695.000				

Source: U. S. Pulp Producers Assn., Inc.

#### U. S. PRICES OF DISSOLVING WOODPULP **Dollars Per Short Ton**

		Regular Tenacity Viscose	High Tenacity Viscose	Acetate & Cupra
	1929	\$ 97.00		
	1933	70.00		
IAN.	1938	97.50		100.00
IAN.	1946	107.50	112.50	117.50
IAN.	1947	132.00	138.50	148.00
MAR.	1948	157.00	167.00	182.00
IUN.	1949	159.00	168.00	178.00
OCT.	1949	150.00	161.00	171.00
AUG.	1950	159.00	170.00	185.00
IAN.	1951	185.00	195.00	225.00
MAY	1952	185.00	195.00	225.00
MAY	1953	185.00	195.00	225.00
MAY	1954	185.00	195.00	225.00
IULY	1955	185.00	195.00	225.00
JULY	1956	185.00	195.00	225.00

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of Linings and
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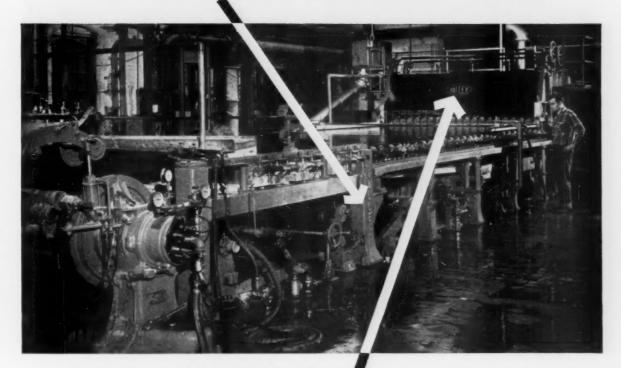
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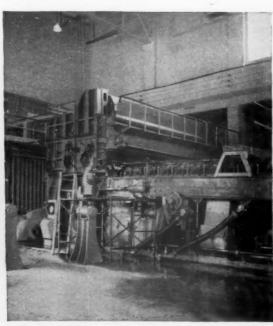
- CANTILEVER
- STATIONARY
  - RUNOUT



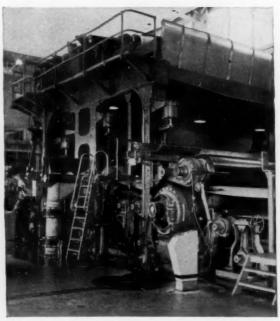
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DOMINION PRESSURE TYPE HEAD BOX feeds the stock efficiently ensuring good formation on the wire at any operating speed.



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# 2,022.6 TONS OF NEWSPRINT IN 62/3 DAYS!

A typical run for a Dominion Vacuum Transfer equipped 284" newsprint machine.

This machine is equipped with a Dominion Pressure Type Head Box and Couch Vacuum Transfer incorporating a Screw Type Broke Conveyor-Pulper. The latter not only removes broke from the Press section but also reduces it to pulp and returns it automatically to the Couch Pit. 2,022.6 Tons of Commer-

cial Newsprint produced in 62/3 days is an enviable performance but one that will be surpassed as this machine and others of its type are brought to their design speeds. This is achieved through close liaison between the paper makers of Canadian Mills and the Engineers and Designers at Dominion Engineering.



# DOMINION ENGINEERING COMPANY LIMITED PAPER DIVISION MONIREAL TORONTO WINNIPES VANCOUVER



Pushing back the sea makes room for new \$11,000,000 chlorine-caustic soda plant. About 1.000,000 yards of the sea bottom will level the 100-acre plant site, protecting it from tides and providing a deep-sea dock.

Vancouver, early 1957:

## Western Canada's first domestic source of chlorine and caustic soda

In little more than a year, pulp and paper mills of Western Canada will feel the advantages of a new source of caustic soda and chlorine . . . their first domestic source.

If your company has a mill or plans to build one on the Western Canadian seaboard, here is what this means to you:

You will be able to get faster, cheaper delivery of caustic and chlorine over a shorter supply line. There will be a small but real freight saving. And you will be able to draw more timely, more flexible technical assistance from men who know your industry well.

These and other advantages will be yours thanks to a new \$11,000,000 Hooker plant now under construction at North Vancouver. The new plant will be part of a distinctly Canadian company, Hooker Chemicals, Ltd. It is being built by Canadians to serve Canadian industry. It will use the manufacturing processes and experience of Hooker Electrochemical Company, well known to the pulp and paper industry for fifty years.

If you would like to discuss the new plant and your own needs, or if you would like technical data and assistance on Hooker chlorine and caustic soda, write to Hooker Chemicals, Ltd., 717 Pender St. West, Vancouver 2, B. C.

Note: During the construction period at Vancouver, the Hooker plant at Tacoma will continue barge and tank car delivery of chlorine and caustic soda to your area. Another dependable supply of caustic is provided by our storage depot at Vancouver.

From the Salt of the Earth

#### HOOKER ELECTROCHEMICAL COMPANY

1907 FORTY-SEVENTH STREET, NIAGARA FALLS, N. Y.

NIAGARA FALLS . TACOMA . MONTAGUE, MICH. . NEW YORK . CHICAGO . LOS ANGELES





## **NORTH AMERICA**

#### CANADA

#### 1955 Was Industry's Best Year And 1956 Will Be Bigger

Population: 15,000,000; Per capita paper consumption: 280 lbs. Paper mills: 96; Woodpulp mills: 34; Other fiber pulp mills: 2.

Production (short tons):	1955	1954
Paper	7,170,360	6,753,398
Chemical	.,,	_,,
woodpulp	4,138,252	4,117,439
Mechanical		
woodpulp	5,429,162	5,301,099
Newsprint	6,190,647	5,984,207
Woodpulp exports	2,312,369	2,173,160
Principal paper grekraft and sulfite paperboard.	papers, bool	Newsprint, k and fine,
D. C. T. C.		

Principal exports to: U. S., United Kingdom, British Commonwealth.

 Dynamic expansion continues to set the pattern for the No. 1 industry of Canada, with production steadily rising and new capacity being provided to meet growing demand from all major markets.

The year 1955 was the best in the industry's history. Output of the mills rose 5% over 1954, almost 12% over 1953

Every section of Canada where the industry has become established has been sharing in the expansion. Most new mills are currently being built in the West, but throughout Eastern Canada machines are being speeded up and new equipment added.

Over-all growth of the pulp and paper industry has more than kept pace with the industrial growth of the nation as a whole. The industry is still the biggest single industrial creator of wealth in Canada, providing an even greater proportion of the gross national product than it did 20 or 30 years ago.

#### MOST GRADES ADVANCE .

Last year, Canadian mills produced 10,400,000 tons of various pulp and paper products, compared with 9,900,000 tons in the previous year. Output of every grade, with the exception of dissolving and special

chemical grades of pulp, increased. Exports of woodpulp broke all past records, reaching over 2,300,000 tons in 1955, second only to Sweden.

Exports of the industry, representing four-fifths of its total production, increased by nearly 7%. Total woodpulp production was up by 4%; bleached sulfite pulp by 21% and unbleached sulfite by 7%.

The industry's output of sulfate pulp has doubled since 1947. In 1955 bleached sulfate pulp output moved up by 4% and unbleached sulfate production by 4.9%. Production of mechanical pulp increased by 2%. Owing to conditions in the textile industry, dissolving and chemical pulp production declined from 456,000 tons a year ago to 415,000 tons in 1955. Exports of that grade during the twelve-month period dropped from 391,000 tons to 360,000 tons.

INCREASES IN PAPER . . . But the production of all grades of paper advanced sharply. Total paperboard output increased by 5½%, and fine paper output increased by 3.7%. There was a 22% increase in the output of miscellaneous printing papers, a 3.6% increase in wrapping papers, and 9% increase in miscellaneous papers.

Demand for newsprint, especially in the U.S., was far in excess of expectations. Consumption of newsprint in 1955 increased by over 8% in the important U.S. market and consumption in overseas markets was proportionately even higher—10%. During the past ten years the Canadian newsprint mills have increased their production by more than 1,500,000 tons.

WHAT HAPPENED IN PULP MARKET . . . Producers of chemical pulp in Canada also experienced an upsurge in demand, resulting in an increase of about 11% in the amount of pulp manufactured for sale. While exports of dissolving pulp, owing to conditions in the textile industry, declined by 8%, there was a 37½% increase in export of bleached sulfite pulp. Improvement in demand for this grade benefited the dissolving

pulp manufacturers who used their surplus capacity to produce bleached sulfite grades.

Of Canada's pulp exports, 80% went to the U.S. in 1955, although there was a substantial increase in demand from overseas.

Rising costs of almost everything entering into the construction, installation, maintenance and operation of mills continued to concern the industry, in view of the rising competition, especially from newsprint in the South. Significant of the situation was the indication by Harold S. Foley, chairman of the board, Powell River Co., that his organization was studying the advisability of building a newsprint mill in one of the Southern states. International, which has three big newsprint mills in Eastern Canada, decided last year to build another mill in the South rather than to establish another site in Canada. CIP did, however, take over Brown's LaTuque bleached sulfate mill in Quebec and is expanding it.

#### East of the Rockies

Montreal, P. Q.

And, despite evidence of a growing caution, the industry was definitely setting its sights on higher production. Here is a summary of developments currently under way east of the Rockies:

ALBERTA-Northwestern Pulp & Paper Co.'s \$33,000,000 mill to produce 430 tons a day of bleached sulfate will be completed early in 1957, financed by St. Regis Paper Co. and

## EASTERN CANADIAN PULPWOOD PRODUCTION

(East of Rockies, including Newfoundland)

Wood-Yea	11	-									Cords
1939-40								0			6,350,000
1946-47				0	0						9,324,000
1949-50											11,850,254
1950-51											12,873,476
1951-52											14,193,894
1952-53											14,152,176
1953-54		0									14,254,332

Source: Canadian Pulp and Paper Association.



HOLDING PULPWOOD ON THE RESTIGOUCHE. One of important pulpwood routes in New Brunswick is the Restigouche River. This shows the so-called North Boom, where wood is held for the use of Dalhousie, N. B., newsprint mill of New Brunswick International Paper Co. The cairn-like structures which serve as anchors for the floating logs are based on piles of rock, buttressed by logs so as to reduce damage from friction. Bag booms will be built from the logs held here and towed to the mill.

North Canadian Oil Co. Antler Wood Products, Ltd. is planning a \$20,000,000 chemical pulp mill of 250 tons at Whitecourt.

MANITOBA—The Abitibi subsidiary, Manitoba Paper Co. at Pine Falls, will complete a \$6,000,000 expansion program, including speed-up of paper machines. Fibreboard Manufacturing Co. at Winnipeg is increasing production to 70,000 square feet.

ONTARIO—Abitibi is making important improvements at its pioneer Iroquois Falls and Smooth Rock Falls mills, \$3,000,000 being spent at the latter on a general mill rehabilitation project. Alliance Paper Mills at Merritton is increasing drying capacity. Bathurst Power & Paper Co. is building a corrugated box plant at Whitby. Canadian Johns-Manville Co. is building a \$10,000,000 board mill at North Bay. Dryden Paper Co. is engaged in a \$11,000,000 program to more than double output and bring out a new bleached sulfate product.

One of the biggest expansion jobs being undertaken by the industry in the East is at Fort William, where Great Lakes Paper Co. is spending many millions on a program that will carry into 1958. A Bagley-Sewall 272-in. paper machine is being installed there as one item. Also a new market pulp mill. Howard Smith Paper Mills is busy with changes at its Cornwall mill, spending some \$4,000,000. Hygrade Containers (CIP)

is spending \$2,500,000 on a corrugated container plant in Toronto. Ontario-Minnesota Pulp & Paper Co. is installing a new Beloit 276-in. paper machine as part of a \$17,000,000 investment in its mills at Kenora and Fort Frances.

QUEBEC-Canada Paper Co. at Windsor Mills is making several major installations in connection with its kraft operation. Canadian International Paper Co. is concentrating on developments at LaTuque, where it purchased the mill formerly operated by Brown Corp., one of the country's largest producers of bleached sulfate pulp. A 276-in. Beloit machine has been installed for manufacture of paper or board in an over-all \$20,-000,000 project designed to increase capacity from 550 tons to 900 tons. CIP is also spending more than \$10,-000,000 in improvements at its Gatineau and Three Rivers mills.

Consolidated Paper Corp. is making fast progress with a \$8,000,000 program distributed among its Belgo, Laurentide, Port Alfred, Wayagamack mills, where machines are being speeded up among other projects. Donnacona Paper Co. also has a machine speedup job under way, and the E. B. Eddy Co. has a \$5,000,000 rehabilitation program under way at Hull and Ottawa, most of it to be finished this Summer.

Howard Smith Paper Mills is increasing capacity at Beauharnois and

Crabtree mills. Most of Price Bros.' appropriation of \$9,000,000 is for increasing power. Rolland Paper Co. plans installation of a Millspaugh fine paper machine and other work entailing expenditure of \$4,500,000. St. Lawrence Corp. is speeding up machines at its Three Rivers and Dolbeau mills at a cost of \$9,000,000, which also covers cost of other installations.

NEW BRUNSWICK—Fraser Companies are initiating plans for additional bleaching capacity and additions to the steam plant. New Brunswick International Paper Co. has a \$7,000,000 program for the Dalhousie mill, speeding up three paper machines, etc.

NOVA SCOTIA—Mersey Paper Co. has a number of improvements underway at Brooklyn, some of which will not be completed until 1957.

NEWFOUNDLAND — Bowater's Newfoundland Pulp & Paper Co. is completing a \$6,000,000 program that includes installation of a new Kamyr press, and an additional \$5,000,000 is being spent at its big Corner Brook mill on paper machine speedup and new grinders, digesters and rebuilding one of the older machines. Anglo-Newfoundland Development Co. is speeding up four newsprint machines.

NEW MILLS. . . . Discussion continues relative to new mills in East-

ern Canada. Scott Paper Co. has withdrawn from a projected bleached kraft venture in Canso Strait, Nova Scotia, evidently deciding to concentrate for the time being in British Columbia, where it has a 50% interest in Westminster Paper Co. and an arrangement to buy pulp from the new B.C. Forest Products mill at Crofton.

There has been talk of a \$65,000,-000 kraft and newsprint mill at Lepreau, N.B., by Great Lakes Carbon Corp. of New York and other interests, and Anglo-Newfoundland Development Co. has tentative plans for a mill at Sioux Lookout, Ont.

Great Lakes Paper Co. plans to invest about \$40,000,000 in a new pulp mill at Fort William in addition to the expansion currently being carried out at that city. At Thurso, Que., the Singer Manufacturing Co. and Perkins-Goodwin Co. of New York plan to build a 200 ton pulp mill to cost about \$17,000,000.

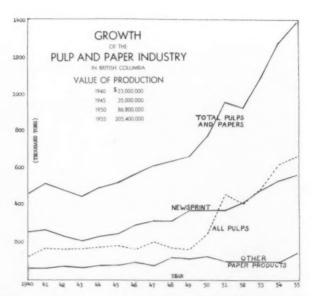
#### 6 New B.C. Mills Under Way

Vancouver, B. C. With four new mills under construction, two more in the planning stage and several others undergoing modernization and expansion costing close to \$40,000,000, British Columbia continues to be one of the fastest growing pulp and paper areas in the world. Developments already authorized call for a total investment in excess of \$200,000,000.

Most of the big money is being spent on new facilities for MacMillan & Bloedel, Crown Zellerbach Canada, and B.C. Forest Products, three companies that are now building major mills. In addition, Sidney Roofing & Paper Co. is erecting a new \$4,300,000 plant in the lower mainland and during the next year or so will move its entire operation there from the original base in Victoria on Vancouver Island.

BIGGEST PROJECT AT ALBER-NI . . . Largest spender on expansion today is MacMillan & Bloedel, which will soon be producing newsprint as well as pulp at Port Alberni. The over-all investment of this company there is \$63,000,000 in work now in progress. The total is very much greater when applied to the company's existing plant in that Vancouver Island port, including the sulfate mill built in 1947 (now being doubled in capacity) and the company's several big sawmills and plywood plant, which together are making Port Alberni one of the world's greatest centers of integrated forest

MacMillan & Bloedel is installing



two 300-ton Beloit newsprint machines and one 180-ton general purpose and board machine. First part of the program will be finished early next year, the balance by mid-1958.

Most of Crown Zellerbach's new investment is being made through its subsidiary, Elk Falls Co., at Duncan Bay, where a 262-in. Beloit machine is being installed to give the mill a 600-ton newsprint capacity. In addition, a 500-ton kraft pulp mill is being built, and during its first year of operation, commencing this summer, most of its output will be shipped in noodle form by specially designed bulk carrier to CZ's plant at Antioch, Calif.

B.C. Forest Products, which in the past has concentrated on lumber and plywood, is laying the foundations for its 420-ton bleached sulfate pulp mill at Crofton on the east coast of Vancouver Island.

Other companies that have been carrying out important improvements at existing mills are Alaska Pine & Cellulose, Canadian Forest Products (at Port Mellon), and Powell River Co.

#### MAY START AT CASTLEGAR

start on construction of mills at Castlegar, East Kootenay district, by Celgar Ltd., subsidiary of Canadian Chemical & Cellulose, which in turn is a subsidiary of Celanese Corp of America, and at Quesnel Lake by Western Plywood Co., which is waiting for approval of its forest management license in that area. A 300-ton chemical pulp mill is planned.

In addition, Powell River Co., in partnership with Aluminum Co. of Canada, is considering the feasibility of building a newsprint mill at Kitimat, although this was placed in the doubtful capacity so far as the immediate future is concerned when Harold Foley, chairman of the board, recently hinted that Powell River Co.'s next move might be establishment of a mill in the Southern states to take advantage of lower costs and a more accessible market.

B.C. PRODUCTION . . . Production of pulp and paper in British Columbia, which has trebled since 1940, attained a new high of 1,407,561 tons in 1955. It is estimated that the industry recovered 490,000,000 bd. ft. of wood that would otherwise have been wasted or put to lower economic use. Only seven years ago there were no facilities for the utilization of this material, so the pulp mills have been an extremely important factor in improving the forest economy of the area.

Newsprint comprised 41% of the total output, and production of other manufactured items rose to 153,298 tons, the highest on record. Value of production also rose to a new high of \$205,407,868. Payrolls for direct manufacture totalled \$42,527.682; payment for direct taxes were

#### BRITISH COLUMBIA 1955 PRODUCTION

(Short Tons

(Short Tons)	
Newsprint Sulfite pulp Alpha and dissolving grades Bleached sulfate Unbleached sulfate Box board Wrapping paper Tissue and special grades	575,588 133,352 169,228 239,552 131,393 40,110 48,343 38,163
Building paper, paper- boards and felts Groundwood (for sale)	26,682 5,150
-	1,407,561

\$22,000,000, and the industry's freight and transportation bill totalled \$18,300,000.

The U.S. was the principal purchaser of British Columbia pulp and paper, spending \$109,000,000 for 53% of the output. Canadian markets bought \$57,382,000 worth, and offshore markets took \$38,971,222 or 19% of the total.

Current evalution of plants and equipment for pulp and paper manufacture in British Columbia approaches \$300,000,000. The industry employed 7,826 men and women in mill and administrative work last year, and an additional 2,823 were employed to supply wood to the mills. Many others were given indirect employment operating chippers in sawmills and logging sawlogs, some of which were converted into chips through recovery of sawmill residue.

#### MILL FOR SASKATCHEWAN . . .

Announcement was made in June that Waskesiu Forest Products, Ltd., will spend upwards of \$50,000,000 on a bleached and unbleached sulfate pulp mill near Prince Albert. the first to be established in the province. Construction will start next spring on a 600-ton operation, with C.D. Schultz & Co., associated with Stadler, Hurter & Co., doing the preliminary engineering. Robert G. Campbell, Vancouver, B.C., and New York interests are behind the ven-

#### **Revolutionary Changes** Coming, Canada Reports

"One radical development seems to be reasonably assured for the near future," states an industry report to the Gordon Economic Commission, making a survey of Canada's economic prospects over the next 25 years. "The basic scientific knowledge already exists for the development of high-speed continuous chemical pulping at atmospheric pressure. It could result in the production of chemical pulps with small, compact equipment, lower in capital costs and located nearer to the source of wood supplies.

"Probably logs will be processed by a machine to reduce them, at high speed, to thin wafers, which would be passed through a chemical spray and on to a cooking device to convert them to pulp in five minutes or less. This would compare with a cooking cycle in present batch-type digesters of eight to ten hours.

Such continuous pulping would be pulping in a pipe, with the wood

#### FIGURES FOR 1955 ON CANADIAN PRODUCTION

	Produ	ction	Exp	orts
	1955	1954	1955	1954
Gross value of output	\$1.3 billion	\$1.2 billion	\$981 million	\$915 million
	Tons	Tons	Tons	Tons
Total wood pulp	9,967,817	9,519,155	2,368,852	2,173,160
Dissolving & Spec. chem	420,075	455,585	357,533	391,557
Bleached sulfite paper grades	637,408	529,065	463,056	330,945
Unbleached sulfite	1,738,413	1.605,568	368,525	354,852
Bleached sulfate	770,155	723,809	652,305	617.122
Unbleached sulfate	670,229	637,937	215,057	196,726
Other chemical	201,972	165,377	40,917	37,598
Groundwood	5,429,162	5,301,099	259,344	233,334
Newsprint	6,190,647	5,984,207	5,805,113	5,549,565
Containerboard	391,032	360,403	22,608	14.237
Boxboard	397,204	377,845	30,755	27,900
Total paperboard	788,236	738,248	53,363	42,137
Fine paper	215,306	206,338	13,506	12,965
Coated paper	26,198	24,816	1,097	674
Other printing paper	79,537	63,043	51,089	35,141
Special papers	113,292	101,798	5,787	3,793
Wrapping paper	258,390	246,196	14,985	12,738
Bldg. papers and boards	287,000	227,000	25,000	4.000

There are some slight duplications in the foregoing figures. Some paperboard and wrapping paper is used by the mills for packaging. Coated paper covers a tonnage that undergoes a further processing after it leaves the paper machine and thus is also included under other grades. Total wood pulp production includes screenings, but excludes defibrated and exploded pulp. In addition to woodpulp, the industry uses annually some 470,000 tons of other stock in the manufacture of paper including about 400,000 tons of waste paper, 38,000 tons of straw, 27,000 tons of rags and cotton linters, and 5,000 tons of flax, leather, jute, rope and other fibres.

#### CONIFEROUS STANDS

Estimated Stands of Accessible Conifers by Provinces

				Millions of cubic feet	Pulp Production Tons— 1951
Newfoundland*				13,095	+
Prince Edward Island				101	nil
Nova Scotia				2,939	1
New Brunswick				6,100	1
Quebec				45,693	4,315,465
Ontario				53,184	2,420,903
Manitoba				2,739	+
Saskatchewan				5,413	
Alberta				7,724	nil
				100,917	1,277,082
Nfld., N.S., N.B. and	1 3	Iani	tob	a	1,659,566

245,345 9,673,566 † Figures for Nfld., N.S., N.B. and Manitoba are not published separately.

\* Excluding Labrador.

Sources: Federal Forestry Branch and Dominion Bureau of Statistics.

entering one end and the finished pulp emerging at the other. It would operate under exact and complete controls at all stages of the pulping process, including bleaching, and would result in more complete and economical recovery of chemicals and by-products. The final product might well have new and improved properties, by reason of the shortened exposure of the cellulose to degradation by the action of chemicals and the almost complete absence of harmful effects now produced by the chipping of wood."

Smaller, more mobile mills are forecast for Eastern Canada's forest areas, although in British Columbia, because of the greater size of the trees and rougher terrain the future pattern of the industry is expected to more closely follow the present one, but with even greater use of mechanized equipment in the forests and larger continuous pulping equipment in the mills.

#### FOREST CONSUMPTION

Average Annual Depl	etion 1944 000's of	-1953*	
	cu. ft.	Wti-	% De- pleted
Logs and holts for		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
domestic use Logs and bolts for export	1,223,009	38.9	36.5
Pulpwood for domestic use	848,239	27.0	25.4
Pulpwood for export	168,197 779,269	5.4	5.0
Ties, poles, pit-props, posts, rails Miscellaneous	72,115 38,536		2.1
Fire 207,165	3,140,644	100.0	93.8
	3,347,809	-	100.0

Island of Newfoundland, but not Labrador, in-uded since 1949. [Figure for depletion does not include agencies ther than fire.] purce: Federal Forestry Branch.

## CANADIAN FORESTS-

1950 REVISION	
Squ	uare Miles
Forested Areas of Canada*: (All except 275,800 square miles, lies within the ten provinces.)	1,567,517
Forested Areas Classed as Unproductive (Small trees in adverse locations not expected to reach merchantable size.)	739,863
Productive Forest Areas	827,654
Productive Forest Not Presently Accessible	245,618
Accessible Productive Forests (Two-fifths bears trees large enough for use; the remainder is younger growth.)	582,036
Privately Owned Forests Farm wood lots	35,594
Others	67,988
	103,582
Cutting Rights Leased by the Crown:	
Pulp and paper licenses	182,840
Saw timber licenses	33,186 4,360
Permit berths	704
a canno de cano a cano a cano a	
	321,090
<ul> <li>Excluding Labrador.</li> </ul>	
Source: Federal Forestry Branch.	

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#### CANADIAN NEWSPRINT CAPACITY AND PRODUCTION

				L	n	t	h	0	usands of s Rated Capacity	hort tons Idle Capacity	Operat-
1925									1.715	193	88.8
1930									3,600	1.096	69.6
1935									3,914	1,163	70.3
1940									4,368	949	78.3
1945									4,301	1,042	75.8
1947									4,350	nil	101.1
1949									5,113	nil	101.2
1951	0								5,360	nil	100.7
1952									5,510	nil	102.9
1953									5,723	nil	100.
1954									5.920	nil	101.0
1955									6,190	nil	_
1956	9								6,620		

\*Estimated by Newsprint Association of Canada

### **NEWSPRINT EXPORTS FROM CANADA**

(SHORT TONS)						
		U.S.A.	Overseas	Total		
1935		2,052,000	523,000	2,575,000		
1940		2,586,000	657,000	3,243,000		
1945		2,534,000	525,000	3,059,000		
1948		3,917,366	410,718	4,328,084		
1950		4,724,000	214,000	4,938,000		
1951		4,790,000	375,000	5,165,000		
1952		4,835,000	463,000	5,666,000		
1953		4,885,000	455,000	5,720,000		
1954		4,875,031	674,534	5,549,565		
1955	******	5.070.211	734 902	5.805.113		

Including Newfoundland since April, 1949. Source: Newsprint Association of Canada.

#### PULPWOOD PRODUCTION FOR CANADA BY PROVINCES

		1953	1954
Quebec	2:		
Cords		6,522,156	6,699,693
Value		\$187,892,748	\$182,050,556
Ontario	):	,, ,, ,	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Cords		3.332.394	3,452,717
Value		\$92,407,717	\$92,002,351
British	Columbia:	, , ,	70=,00=,001
Cords		1,000,929	1,362,109
Value		028,011,950	\$33,175,299
Other :	provinces:	,,	,,, -, -, -,
Cords		2,525,337	2,739,813
Value		\$62,599,849	\$65,868,731
All Car	nada:	,,,	400,000,102
Cords		13,380,816	14,359,362
Value		\$370,912,264	\$374,754,020

#### PRINCIPAL STATISTICS OF CANADIAN PULP AND PAPER INDUSTRY

Year	Establis ments		Em- ployees	Salaries and Wages	Fuel and electricity purchased	Materials and supplies used	Gross Value of products
	No.	\$	No.	\$	\$	8	3
1919		275,767,364	26,647	32,264,208	12,503,197	54,084,801	137,912,502
1925	114	460,397,772	28,031	38,560,905	17,506,735	76,514,990	193,092,937
1931	103	630,176,540	26,669	34,792,013	22,927,919	63,947,678	174,733,954
1937		570,352,287	33,205	48,757,795	29,121,065	91,121,629	226,244,711
1943		667,458,143	37,020	71,199,422	36,211,064	143,956,462	345,653,470
1948		1,100,000,000	51,924	151,662,761	41,365,665	274,553,791	825,857,664
1949		1,100,000,000	52,050	157,703,868	41,370,633	272,681,606	836,148,393
1950		1,150,000,000	52,343	169,246,531	44,440,376	289,548,301	954,137,651
1951		1,200,000,000	57,291	213,169,906	75,625,718	421,280,139	1.237,897,470
1952	128	1,250,000,000	57,803	225,353,327	76,739,757	497,046,828	1.157.887.657
1953	127	1,300,000,000	58,194	235,741,660	80,379,515	499,350,994	
1954	127	1,400,000,000	60,837	252,598,383	84,880,788	515,257,595	
1955°	127	1,500,000,000	62,000	260,000,000	90,000,000	550,000,000	

<sup>°</sup> Estimated.

#### CANADIAN PAPER PRODUCTION

	Neu	esprint	Total	Paper
	Tons	\$ Value	Tons	\$ Value
917	689,847	38,868,084	853,689	58,750,341
929	2,725,331	150,800,157	3,197,149	192,989,252
932	1,919,205	85,539,852	2,299,767	114.115.570
941	3,519,733	158,925,310	4,524,776	241,450,292
945	3,324,039	189,023,736	4,359,576	282,837,614
948	4,640,336	402,099,178	6,063,646	582,346,000
950	5,318,988	506,968,207	6,812,035	710,153,826
952	5,687,051	600,515,000	7,201,800	838,105,108
1953	5,707,030	633,408,019	7,376,000	887,858,473
954	6,000,895	657,487,344	7,649,607	925,590,643
955*	6,100,000	675,000,000	7,800,000	950,000,000

Source: Dominion Bureau of Statistics. 
<sup>o</sup> Estimated by PULP & PAPER.

#### CANADIAN PAPER PRODUCTION BY PROVINCES

(Quantity in Tons-Value in Dollars)

	Quebec	Ontario	British Columbia	Other Provinces	TOTAL
1945 Tons	2,292,442	1,267,796	334,502	464.836	4.359,576
1945 Value	\$148,180,691	\$86,395,223	\$20,353,984	\$27,907,716	\$282,837,614
1948 Tons	3,240,623	1,837,510	425,104	560,409	6,063,646
1948 Value	\$303,691,283	\$187,182,675	\$40,317,091	\$51,155,793	\$582,346,842
1951 Tons	3,511,669	2,019,235	513,165	1.181.202	7,225,271
1951 Value	\$389,554,493	\$251,918,611	\$59,763,061	\$122,793,484	\$824,029,649
1952 Tons	3,515,193	1,963,403	540,140	1,183,064	7,201,800
1952 Value	\$400,663,379	\$246,215,714	\$62,261,263	\$128,964,752	\$838,105,108
1953 Tons	3,542,987	2,018,843	632,556	1,182,140	7,376,526
1953 Value	\$416,505,144	\$263,409,878	\$74,131,677	\$133,811,774	\$887,858,473
1954 Tons	3,667,794	2,067,041	683,384	1,231,388	7,649,607
1954 Value	\$435,083,677	\$271,952,011	\$79,499,580	\$139,055,375	\$925,590,643
1955 Tons*	3,700,000	2,200,000	700,000	1,250,000	7,850,000
1955 Value	\$450,000,000	\$300,000,000	\$100,000,000	\$150,000,000	\$1,000,000,000

Source: Dominion Bureau of Statistics.

\* Estimate by Pulp & Paper.

#### CANADIAN WOODPULP PRODUCTION BY PROVINCES

(Quantity in Tons-Value in Dollars)

	Quehec	Ontario	British Columbia	Other Provinces	TOTAL
1945 Tons	2,887,176	1,468,682	520,571	724,385	5,600,841
1945 Value	\$114,197,036	\$62,596,260	\$21,998,381	\$33,081,445	\$231,873,122
1948 Tons	3,902,072	2,226,124	688,209	858,674	7,674,079
1948 Value	\$227,425,545	\$153,870,832	\$49,220,655	\$55,449,132	\$485,966,164
1950 Tons	3,922,543	2,297,518	776,896	1,476,067	8,147,014
1950 Value	\$216,299,900	\$156,390,753	\$49,381,923	\$80,511,349	\$502,583,925
1951 Tons	4,282,568	2,484,551	924,154	1,623,576	9,314,849
1951 Value	\$298,100,313	\$219,571,231	\$100,898,418	\$109,310,043	\$727,880,005
1952 Tons	4,192,047	2,308,722	915,634	1,552,606	8,968,009
1952 Value	\$280,314,341	\$182,773,000	\$82,551,730	\$104,382,109	\$650,021,180
1953 Tons	4.163.068	2,323,509	1,070,863	1,552,606	9,077,063
1953 Value	\$265,937,385	\$177,713,471	\$84,658,292	\$104,382,109	\$624,863,504
1954 Tons	4,315,465	2,420,903	1,277,082	1,659,566	9,673,016
1954 Value	\$268,759,418	\$183,381,040	\$99,629,620	\$104,146,660	\$655,916,738
1955 Tons*	4,300,000	2,425,000	1,300,000	1,670,000	9,695,000
1955 Value*	\$270,000,000	\$185,000,000	\$101,000,000	\$105,000,000	\$661,000,000

Source: Dominion Bureau of Statistics.

\* Estimate by Pulp & Paper.

#### CANADA'S PULP EXPORTS

		Tons	Value		
1921		527,222	\$33,133,675		
1926		1.003.081	52,077,122		
1932		452,292	18,930,065		
1937		870,711	41,815,731		
1942		1,510,727	95,266,873		
1947		1,698,712	177,802,612		
1950		1,846,143	208,555,549		
1951		2,260,834	365,132,884		
1952		1,902,059	291,863,498		
1953		1,950,152	248,674,880		
1954		2,180,416	271,418,005		
1955°		2,370,700	270,000,000		

Source: Canadian Dominion Bureau of Statistics and Canadian Pulp and Paper Association.

\* Estimate by Pulp & Paper.

#### CANADA—PULP PRODUCTION

(Tons of 2,000 lbs.)

Mechanical Tons	Sulfite Tons	Alkaline Tons	Total Tons
1.090.114	654,273	188.487	1,922,774
			2,706,909
			3,548,187
			3,689,000
			5,290,762
			5,460,344
			6,992,236
			7,366,600
			7,566,049
			8,075,164
			9,122,229
			8,800,000
			8,961,597
			8,910,698
			9,150,000
		Tons  1,090,114 6 54,273 1,621,917 842,785 2,283,130 1,076,804 2,488,000 1,025,004 3,305,484 1,480,545 3,341,92 1,639,684 4,275,269 2,077,532 4,413,513 2,138,011 4,718,806 1,991,459 4,910,803 2,110,775 5,125,043 2,533,481 5,102,000 2,367,000 5,122,537 2,398,543 5,275,787 2,241,787	Tons Tons Tons  1,090,114 654,273 188,487 1,621,917 842,785 242,207 2,283,130 1,076,804 188,253 2,458,000 1,025,000 206,000 3,305,484 1,480,545 399,267 3,341,920 1,639,684 478,740 4,275,269 2,027,532 689,435 4,413,513 2,138,011 815,076 4,718,806 1,991,459 855,784 4,910,803 2,110,773 1,053,588 5,125,004 2,553,481 1,463,705 5,102,000 2,367,000 1,331,000 5,122,537 2,398,543 1,440,517 5,275,787 2,241,787 1,393,124

Dominion Bureau of Statistics and Canadian Pulp and Paper Association.

\* Estimated by PULP & PAPER.

#### MILL LOCATIONS

Pulp Mills	Paper	Paper	Total
1	2		3
2	2		4
4	3		7
12	34	9	55
9	19	15	43
	3		3
6	6		12
34	69	24	127
	Mills  1 2 4 12 9	Pulp Paper Mills  1 2 2 4 3 12 34 9 19 3 6 6 6	Mills Mills Mills  1 2 2 2 2 4 3 12 34 9 9 19 15 3 6 6

Source: Dominion Bureau of Statistics.

#### **CANADIAN STAPLE FIBER Production and Imports**

(in thousands of pounds) Viscose Acetate Nylon Deliv- Produc-Produc-

	eries	tion	tion	Imports	Total
1939	_	_	_	2,701	2,701
1946	-	750	_	9,565	10,315
1949	2,084	2,050	1,000	11,131	16,265
1950	11,866	4,200	1,500	7,409	24,975
1951	10,220	4,600	1,750	18,736	35,306
1952	16,036	5,750	2,500	9,823	34,109
1953	13,846	4,996	3,000	8,018	29,614
1954	18,500	3,600	3,000	6,525	31,625
1955		31.536		12.233	43,769

Source: Canadian Textile Journal.

## CANADA-PULP MADE FOR SALE

	Lares	T Data A	vallable				
Kinds of pulp	Quantity		Selling va	lue at mill	Average value		
Groundwood pulp	1953 tons	1954 tons	1953	1954	1953	1954	
Bleached	37,709 147,185	40,596 142,826	2,679,590 8,941,721	3,175,426 8,547,196	71.06 60.75	78.22 59.84	
Sulfite, bleached Dissolving For chemical conversion For paper For other uses Paper grades	357,300 5,589 207,967	367,719 7,245 1,290 313,400	63,371,379 668,714 26,805,141	62,178,530 849,862 238,474 37,591,842	177.36 119.65 128.89	169,09 117,30 184,86 119,95	
Sulfite, unbleached Strong News Grade	193,615 113,285	226,344 99,259	22,020,339 12,244,311	24,618,384 10,646,135	113.73 108.08	108.77 107.26	
Sulfate Bleached Semi-bleached Unbleached	264,315 8,051 179,751	362,445 30,402 206,920	36,648,403 1,022,825 16,750,983	45,910,043 3,085,782 19,832,787	138.65 127.04 93.19	126.67 101.50 95.85	
Screenings, chemical Sulfate Sulfate	12,247 1,419	13,079 1,126	458,837 85,335	465,173 67,529	37.47 60.14	35.57 59.97	
Screenings, mechanical	4,634 39,909	3,168 43,664	102,070 4,855,728	70,620 5,321,475	22.03 121.67	22.29 121.87	
Total	1,572,976	1,859,483	196,655,376	222,599,258	125.02	119.71	
Source: Dominion Bureau of Statis	tics						

#### CANADIAN PULPWOOD

(In cords)

Year	Production	Consumption	Exports	Imports
1921	3,273,131	2,180,578	1,092,522	
1925	5,092,461	3,668,959	1.423.502	
1930	5,977,183	4.741.349	1,330,466	94,632
1935	6,095,016	5,005,083	1,109,873	19,940
1940	8,499,922	6,996,119	1,551,429	47.626
1945	9,145,673	7,478,508	1.671.298	4.133
1947	11,484,522	9,551,050	1,983,980	50,508
1948	12,497,926	10,256,549	2,317,346	75,969
1949	11,850,254	10,237,976	1.612.278	5,491
1950	12,873,476	11.138,578	1.734.898	28,220
1951	15,053,910	12,554,064	2,871,173	41,000
1952	14.102.670	11,609,407	2,493,263	30,784
1953	13,380,816	11,680,418	1.749.203	48,805
1954	14,254,332	12,475,600	1.778.732	105,030
1955°	14,500,000	12,500,000	1,775,000	75,000

Imports not reported prior to 1928. Source: Dominion Bureau of Statistics.

\* Estimated by Pulp & Paper.

#### CANADIAN PULP AND PAPER PAYROLL DATA

	Total Employes	Employes On Salary	Average Salary	Employes On Wages	Average *Wage	Total Salaries- Wages		
1920	31,298	2,669	\$2,449	28,629	\$1,352	\$ 45,253,893		
1939	31,016	4,382	\$2,482	26,634	\$1,271	\$ 44,737,739		
1943	37,020	5,384	\$2,723	31,636	\$1,787	\$ 71,199,422		
1947	49,946	7,706	\$3,411	42,240	\$2,443	\$129,477,995		
1950	52,343	8,578	\$4,163	43,765	\$3,051	\$169,246,531		
1952	57,291	9,493	\$5,069	47,798	\$3,899	\$229,000,000		
1953	58.194	9.394	\$5,315	48,800	\$3,808	\$235,741,660		
1954	60,837	9.689	\$5,500	50,309	\$4,000	\$252,598,383		
1955**	61,000	10,000	\$5,600	51,000	\$4,100	\$260,000,000		

\* Woods labor not included.
\*\*Estimate by PULP & PAPER.
Source: Dominion Bureau of Statistics.

#### CANADA'S FOREST RESOURCES—A NEW SURVEY—Merchantable and Accessible Saw Timber (10" D.B.H. and Up)—in Millions of Feet Board Measure

			** *******		D.111. GIIG	OP/			- 111003010			
	Newf dland	Prince Edward I Island	Nova Scotia	New Bruns'ck	Quebec	Ontario	Manitoba	Saskat- chewan	Alberta	British Coast	Columbia Interior	All Canada
Softwood Hardwood Total All Species	3,127 3,127	65 40 105	4,849 1,261 6,110	5,000 1,500 6,500	38,181 14,019 52,200	42,775 11,529 54,304	815 1,630 2,445	580 1,010 1,590	7,000 2,080 9.080	76,108 76,108	33, <b>630</b> 33,630	212,130 33.069 245,199
			S	maller Ma	iterial (4	" D.B.H.) in	n Thousand	s of Cord	s			
Softwood Hardwood Total All Species	31,902 31,902	560 240 800	23,167 5,363 28,530	60,000 30,000 90,000	450,495 176,108 626,503	261,515 300,380 561,895	9,900 19,090 28,990	3,200 50,130 53,330	74,400 36,000 110,400	13,922	172,364 172,364	1,101,425 617,311 1,718,736

\* British Columbia forests contain considerable quantities of hardwood, but no complete inventory has yet been made. Source: Dominion Forest Service.

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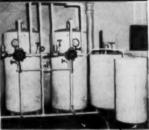
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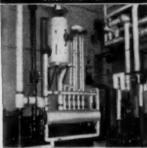
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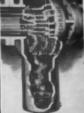
SALT SPLITTER



CONTINUOUS BLOW-OFF



STEAM PURIFIER



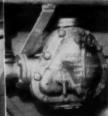
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C-B SYSTEM



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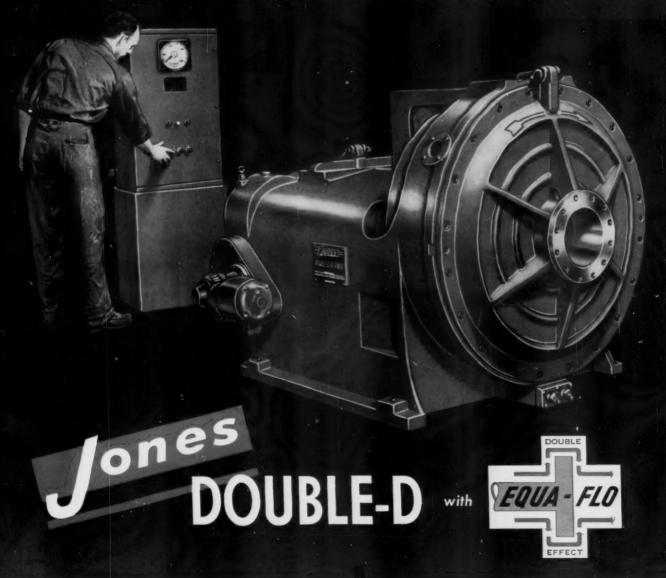
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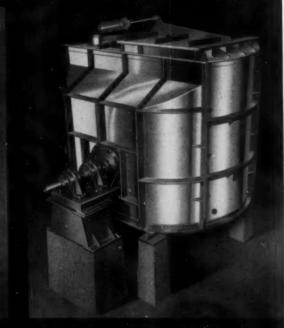
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IN CANADA: The Alexander Fleck, Ltd., Ottawa

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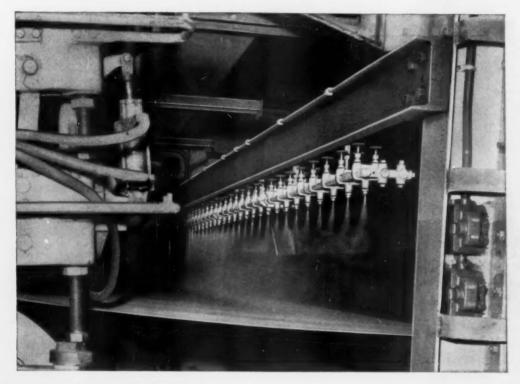
CASTLE & OVERTON, INC. New York 20, N. Y.

### VAPO SYSTEMS COMPANY

126-132 West Home Avenue VILLA PARK, ILLINOIS

PAPER MILL ENGINEERS

PAPER MILL EQUIPMENT



## **Vapo Systems**

only modern method of efficiently conditioning paper at the mill, in the process of manufacturing. Any degree of "moisturization" can be secured, at any machine speed, uniformly over any sheet trim size.

In addition to conditioning the sheet under speed, Vapo Systems is also designed to improve sheet finish by applying Starches, Wax Emulsions, Plasticisers and many other water or chemical mixed solutions, before the calendering operation.

One hundred sixty-eight successful installations of Vapo Systems are in operation in several of the large paper mill chains and progressive individual mills. Every Vapo Systems has proved a good investment, as well as a quality builder for fine papers. Mill records show that every installation of Vapo Systems has paid its entire cost back in much less than six months time.

A LONG TERM INVESTMENT in any manufacturing of paper and in any converting or printing operation, Vapo

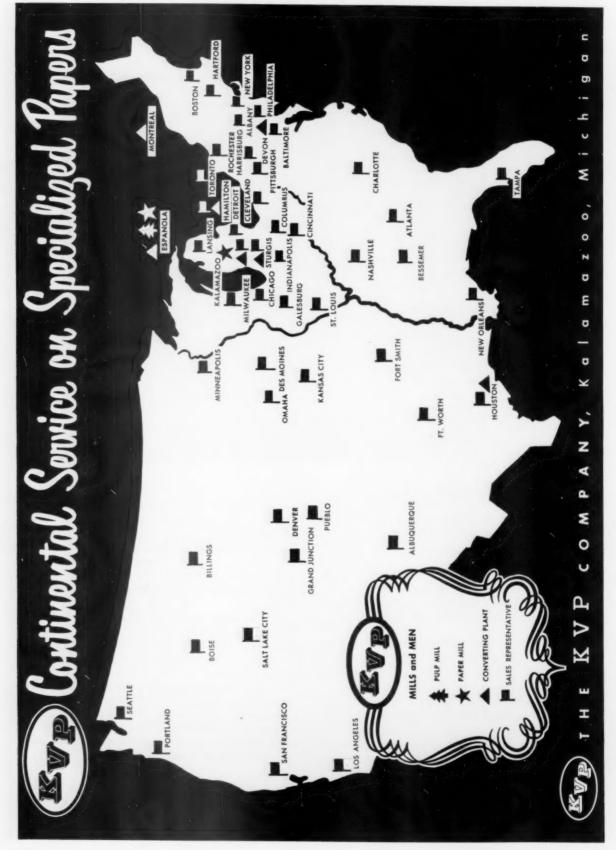
Systems have proven themselves a very worthwhile investment. The purchase of a Vapo System should not be considered as merely the buying of just so much equipment—it fills a definite present-day need and provides the added feature of many years of successful operation at a profit.

In particular, Kraft Mills, Board Mills and heavy paper manufacturers have discovered that the installation of Vapo Systems ranks among the best investments they have ever made.

The laminating and coating fields, too, have found that Vapo Systems return their cost in short periods of time. This is especially true in laminating and embossing where papers are dried out to a certain extent in the processing work and need to be "remoisturized" before being put to their end use. In many instances in the hot asphalt laminating field, it has been absolutely necessary to use Vapo Systems in order to make a salable end product.

In the matter of converting, processing, and even printing, where curl has become an objectionable problem, the use of Vapo Systems is definitely an asset.

WRITE FOR FURTHER INFORMATION. Our Engineering Department will be pleased to discuss your paper production problems with you. Vapo Systems are designed to meet any operating specifications management desires. In many cases, we can develop special applications of Vapo Systems to improve your operating procedures. We will be pleased to answer any inquiry. No cost or obligation of course.



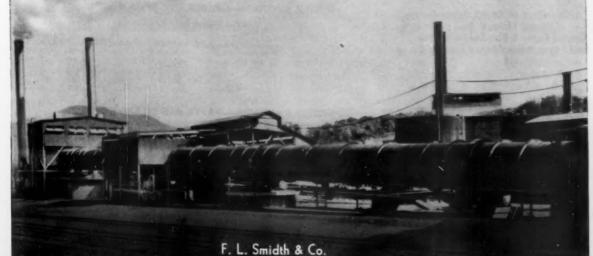


# SMIDTH Rotary Kilns

## For Reburning Lime Sludge

We are specialists in the design and manufacture of rotary kilns, coolers and auxiliary equipment for burning lime, lime sludge and for many other purposes. Over 1,000 Smidth rotary kilns have been furnished all over the world.

Shown below is the second Smidth Rotary Kiln for reburning lime sludge at the Canton, North Carolina, plant of the Champion Paper & Fiber Co.



- F. L. Smidth & Co., A/S 77 Vigerslev Alle Copenhagen, Denmark
- Engineers and Machinery Manufacturers 11 West 42nd Street New York 36, N. Y.
- F. L. Smidth & Co., Ltd., 105, Piccadilly, London, W. 1, England

- F. L. Smidth & Cie France 80 Rue Taitbout Paris (9e) France
- F. L. Smidth & Co. of Canada, Ltd. 11 West 42nd Street New York 36, N. Y.
- F. L. Smidth & Co. (Bombay) Private Ltd. 42 Queen's Road Bombay, India



### EUROPE

### UNITED KINGDOM Another Record Year with Much Expansion of Mills

Population: 50,968,000. Per capita paper consumption: 187 lbs.
Paper and board mills: 209. Woodpulp mills: 8. Straw, other fiber mills: 73.
Paper and board\* 3,646,965 3,391,000 Chemical woodpulp 16,283 15,969 Groundwood pulp 139,463 142,000 Paper, board imports 1,416,862 991,841 Paper, board exports 334,598 271,176 Woodpulp imports 2,648,505 2,149,750 \*\*Obes not include fiber building board. Principal paper grades made: Book, writing, paperboard, newsprint. Principal paper imports from: Canada, Sweden, Netherland (strawboard). Principal woodpulp imports from: Sweden, Norway, Finland, Canada, U.S.A. Principal paper exports to: Australia, New Zealand, South Africa, Ireland, India, U.S.A.

#### By F. H. LLEWELLYN THOMAS

Secretary of British Paper & Board Makers' Assn., Coated Paper & Board Makers' Assn., and Paper Makers' Straw Trading Co.

At the halfway stage of 1956 it is well to look back on the last 18 months of paper and board making and coating in the United Kingdom.

1955 was a record year both for United Kingdom production and export.

With a population of 50,968,000, the average person in the United Kingdom consumed 187 lbs. of paper and board. This amount was supplied by a total paper and board production of 3,256,219 long tons (3,646,965 short tons), compared with a total of 3,027,358 long tons (3,390,641 short tons) in 1954, an increase of 7% and an import of 1,265,056 long tons (1,416,863 short tons). The percentage increase of 1954 production over 1953 was 13%.

Newsprint increased by 1% from 612,554 long tons (686,060 short tons) to 619,784 long tons (694,158 short tons).

Other paper rose from 1,554,866

long tons (1,741,450 short tons) to 1,721,600 long tons (1,928,192 short tons), an increase of 11%.

Paperboard production rose from 859,938 long tons (963,131 short tons) to 914,835 long tons (1,024,615 short tons), an increase of 6%. Imported raw materials for the industry in 1955 amounted to 2,334,000 long tons (2,614,080 short tons) costing £95 millions (\$266,000,000).

In the export trade there were reports that increased productive activity in other papermaking countries was leading to greater competition, some of it at price levels below those of United Kingdom suppliers. Nevertheless in 1955 a total of 298,748 long tons (334,598 short tons) of paper and board manufactures thereof at a value of £37,629,047 (\$105,361,332) were exported made up of paper and board 230,440 long tons (258,093 short tons), value £21,576,402 (\$60,-

413,925); coated paper and board 28,116 long tons (31,490 short tons), value £5,482,450 (\$15,350,860) and manufactures of paper and board 40,192 long tons (45,015 short tons), value £10,570,195 (\$29,596,546).

This compared with the total exported in 1954 of 277,460 long tons (310,755 short tons) at a total value of £33,449,092 (\$93,657,457), made up of paper and board 216,127 long tons (242,062 short tons), value £19,764,155 (\$55,339,634); coated paper and board, 26,187 long tons (29,329 short tons), value £4,576,784 (\$12,814,995), and manufactures of paper and board, 35,146 long tons (39,364 short tons), value £9,108,153 (\$25,502,828).

This represented an average price per ton for exports in 1955 of £126 (\$353.80), compared with the average price in 1954 of £121 (\$338.80).

The government found it necessary

### UNITED KINGDOM—PAPER and BOARD IMPORTS (in short tons)

,	Newsprint	Packing & Wrapping	Fibre Build- ing Board	Other Un- coated Board	Coated Paper	Coated Board	& Board & Mjrs.
Av. 1936-7-8	495,644	303,292	32,672	403,184	7,771	26,790	53,300
1946	116,584	81,547	40,824	105,029	564	3,222	17,300
1953	262,050	154,625	73,613	239,872	615	2,180	20,345
1954	366 242	238,156	139,966	368,778	730	3,784	33,079
1955	451,143	302,294	188,422	433,377	727		37,001

### UNITED KINGDOM—PAPER and BOARD EXPORTS

			(in short	tons)			
	Newsprint	Other Uncoated Printing	Writing Paper in large sheets	Uncoated Board	Coated Paper	Coated Board	Other Paper & Board & Mfrs.
Av. 1936-7-8 1946 1953 1954	70,985 17,292 139,786 143,033 155,229	57,675 20,854 20,595 24,836 28,215	13,796 12,606 5,873 6,577 6,831	15,103 6,572 8,510 9,975 10,081	9,397 12,401 17,020 23,580 26,953	2,277 1,888 3,022 5,749 4,537	55,414 50,584 85,209 97,005 102,752

#### UNITED KINGDOM-RAW MATERIALS AND PAPER

Thousands of Short Tons-Source: Board of Trade

	_		Consum	ption				New	print	Total	Paper
	Pulp- wood	Wood-	Esparto	Rags	Straw		Paper Produced	1m- ports	Ex-	Im- ports	Ex-
1938								491	62	1,177	193
1939							2,894				
1946	 113	995	100	147	321	680	1,908	114	16	357	126
1949	 230	1,272	386	152	93	844	2,475	199	66	509	199
1950	 332	1,724	330	146	107	965	2,835	151	111	736	298
1951	 n.c.	1,983	389	152	168	998	3,100	171	95	973	265
1952	 n.a.	1,608	238	119	136	890		171 261	95 73	635	219
1953		1.670	266	132	134	1,024	2,988	275	139	753	280
1954	89*	1.868	366	155	140	1,170		366		1,151	311
1955	079	2.071	337	159	145	1.228	3,647	451	143 155	1.416	334

In addition to this tonnage of pulpwood, there were 72,320 piled cu. fathoms of "roundwood" in 1953; 86,320 in 1954, and 78,790 in 1955.

to continue the allocation system both for raw materials and paper and board. Allocations permitted were:

WOODPULP

Jan.-June, 1955

£41,123,000 (\$115,144,400) c.i.f. July-Dec., 1955

£44,400,000 (\$124,320,000) c.i.f.

**ESPARTO** 

Jan.-June 1955

£3,000,000 (\$8,400,000) c.i.f. July-Dec., 1955

£4,000,000 (\$11,200,000) c.i.f. PAPER AND BOARD

In Iune 1055

Jan.-June, 1955

£ 17,305,813 (\$48,456,276) f.o.b.

July-Dec., 1955

£18,226,306 (\$51,033,657) f.o.b. Main export markets were Australia, the Union of South Africa, New Zealand, Irish Republic, India and the United States.

Main nations supplying the United Kingdom with woodpulp were Sweden, Norway, Finland, Canada and the United States.

Esparto grass was imported from Algeria, Tunisia, Libya and French

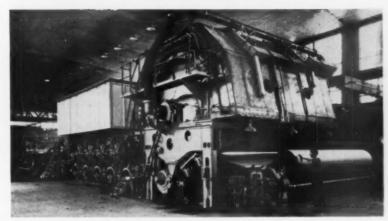
Production of esparto papers in-





DENIS BECKER (left), who is Chairman of Bulkley, Dunton Pulp Co. Ltd., with offices at 34-40 Ludgate Hill, London E.C.4. His associated company, Becker & Co. Ltd., has long been active in London pulp and paper trade circles.

RALPH C. HEYES (right), Managing Director of the papermaking machinery manufacturing firm, Millspaugh's, Ltd., Vulcan Road, Sheffield, England, who was re-elected President of Paper Makers Allied Trades Association.



ONE OF THE LATEST MACHINES to start up in United Kingdom is this No. 12 at Albert E. Reed & Co., Ltd., Aylesford, Kent, shown here. It is the fifth 200-in, wide M:G. machine to be started there. Equipped with an M.G. cylinder 15 ft. in diameter with a 2 in. face, believed to be the largest ever made in Britain, No. 12 was built by Walmsleys (Bury) Ltd., and was erected on site by Aylesford mills' own engineering staff.

creased from 268,705 long tons (300,-950 short tons) in 1954 to 282,871 long tons (316,816 short tons) in 1955. The import of esparto grass was 302,-992 long tons (339,355 short tons) compared with 310,419 long tons (347,669 short tons) in 1954 and 311,-211 long tons (348,556 short tons) in 1938.

The usage of rags for the industry was 142,320 long tons, (159,398 short tons). Papers made from rag increased in production from 39,004 long tons to 43,957 (49,232 short tons). The demand for rag papers continued brisk throughout the year.

The total amount of straw consumed for paper and board making purposes during 1955 was 129,280 long tons (144,794 short tons). The total amount of waste paper consumed was 1,096,552 long tons (1,228,138 short tons).

The number of insured workers in the industry has increased steadily in recent years. Middle-of-the-year figures were: 1938–66,870, 1946–63,-200, 1951–81,000, 1952–80,000,

1953–77,000, 1954–86,200, and 1955–90,700.

WHAT 1956 LOOKS LIKE... Now in midyear 1956, it is apparent that as compared with the early part of 1955 the production of paper is about the same and the production of board is slightly higher.

Compared with the first four month of 1955 the output in January to April, 1956 was 2% higher in the case of newsprint and ½% higher in the case of other papers. The output of paperboard was 2½% higher.

There has been some easing off in ordering, but the impact of this has not been felt to any extent throughout the industry at the present time.

The financial policy of the government as shown in the budget has perhaps resulted in less long term ordering. Deliveries therefore have been brisker than they were in 1955. Capacity has increased and short falls in other classes of paper and board are being to some extent made up. In the case of newsprint it will probably not be until 1958/59 that the overall balance will be obtained.

There has been some slackening in demand in export markets, but it is anticipated that later in the year the demand will become brisker for most qualities of papers and boards normally exported.

The British Paper & Board Makers' Assn. (Inc.) continued under the presidency of Mr. Cyril V. Oliver, B.Sc., F.R.I.C., J.P., with Mr. William Whiteley, J.P., as deputy President.

The association had the great pleasure at its annual dinner on March 15, 1956, of having Mr. R. M. Fowler, president of the Canadian Pulp and Paper Association as its chief guest. The speech made by him on that oc-

### UNITED KINGDOM

### PAPER and BOARD PRODUCTION

### (in thousands of short tons)

	1938-9	1946	1953	1954	1955
Newsprint	897	330	676	687	694
Mechanical papers	256	112	294	346	394
Chemical wood papers	233	113	161	212	253
Esparto papers & boards	270	240	243	301	317
Rag & handmade paper	46	41	37	45	49
Kraft	169	151	222	245	275
Other wrapping (mainly for	food) 68	49	67	75	76
Other wrapping (other)	169	187	221	242	258
Strawpaper	67	47	106	161	179
Building boards	75	53	49	55	56
Other boards	602	517	815	908	969
Wallpaper	49	26	47	54	62
Industrial & misc. papers	45	41	50	60	. 65
Total	2,946	1,907	2,988	3,391	3,647

casion was certainly one of the most memorable in the long history of the United Kingdom Association.

### Other U. K. Reports

onde

Considerable overtime was worked in some of the mills in Britain in 1955, making it possible to effect operating economies and absorb some of the rising costs. A great deal of new expansion was carried out.

The esparto mills which depend on grasses from North Africa for their raw material were faced with a sharp increase in costs for supplies, with the result that they had to raise their prices in the Fall.

Total consumption of woodpulp by United Kingdom mills during 1955 was slightly more than 2,000,000 tons, compared with 1,834,000 tons the previous year.

EXPANSION . . . Bowater organization made progress in extensions to its Mersey and Thames mills, where four new machines are being installed. It also entered into an agreement with Scott Paper Co. of Chester, Pa., for the formation of a joint subsidiary to be known as Bowater-Scott Corp., which will build a \$12,000,000 tissue mill at Northfleet, Kent., with a capacity of 550 tons weekly.

New machines are to be installed by the Wiggins Teape group and Associated Paper Mills, notably at the latter's Horwich plant. The Reed Paper group started up its twelfth machine at its large Aylesford plant to increase production of kraft and sulfite papers. The vear witnessed changes in the century-old Hollins Paper Mill, owned by Wall Paper Manufacturers; Ltd., at Darwen, Lancashire, an industrial site since the Roman conquest. During World War II the mill concentrated on munitions manufacture but has gradually been reconverted for paper production. Modern steel and concrete buildings have replaced ancient stone structures

Thames Board Mills and St. Anne's Board Mills have big expansion plans, and a new board mill is being built by Colthrop Board and Paper Mills at Thatcham, Berkshire.

The Black Clawson organization completed arrangements whereby the Whitehead Iron & Steel Co. will represent it in the United Kingdom. The Whitehead plant at Newport, Monmouthshire, has for several years built Black Clawson equipment.

Bowater made an arrangement with Continental Can Co. whereby it will have rights to manufacture in Britain fiber drums with Continental patents.

Vickerys, Ltd., announced it will

manufacture, under contract with Bauer Bros. of Springfield, O., U.S.A., the latter's Centri-Cleaners.

It remains to be seen to what extent capital investment plans may be modified or deferred in 1956 by the credit squeeze which the British government has instituted as a part of its anti-inflationary measures.

Demand for most paper slackened in the United Kingdom during early 1956. A prolonged labor dispute in the London printing industry slowed down consumption.

### FRANCE New Esparto Pulp Mill Starts;

3 Newsprint Machines from U.S.

Population: 43,140,000. Per capita paper ropatation: 94,140,000. Fer capita paper consumption: 94 lbs. Paper mills: 250, Woodpulp mills: 30 Straw or vegetable fiber mills: 45 Production (short tons) 1954 1.788.600 1.972.850 Chemical woodpulp 379,500 Mechanical woodpulp 368,500 378,400 65,200 161,700 Straw & esparto pulp Paper imports 40,700 88,000 126,500 Paper exports 108,000 Woodpulp imports Woodpulp exports 501,600 553,000 13,200 165,000 Principal paper grades made: Newsprint 421,30 421,300 Kraft 440,000 125,400 594,000 133,100 Straw Book and Writing 399,000 426,800 346,500 Paperboard Cigaret and Tissue 96,000 110,000 Principal paper imports from: Sweden, Finland, Norway, U.S.A.

Principal woodpulp imports from: Sweden, Finland, Norway
Principal paper exports to: Algeria, Morocco, Near East, South America, Vietnam, United Kingdom

Principal pulp exports to: Netherlands, Belgium, Switzerland, United Kingdom

France made more pulp and paper than ever in its history in 1955 and it almost hit the 2,000,000 short tons mark for paper. It is one of the top six or seven nations in paper, making more than Scandinavian countries, for example, but what is of worldwide significance—and particularly to America and Scandinavia—is the drive in France to make more of its own pulp.

Hardwoods and alfalfa grass or esparto (so plentiful in North Africa) are pulping materials. Esparto has been used for many years for fine papers. Production of pulp rose 8% last year, is slated to go up more this year and again in 1957. Lots of factors will control how far it goes—not least of all is the fate of French colonies, now a source for much raw material, as well as being a market, too.

France has its water pollution problems. Encouraging is a decision of an



M. J. BERTHIER, who is President and Gen. Mgr. of La Cellulose du Pin, S.A., of Paris. Its mills are in Gironde. It has some five machines and makes soda pulp and a variety of papers, wrapping and bag paper.

Arbois jurist in Jura last November, who, while he held to strict law upheld by the Supreme Court of Appeal, showed an understanding of industrial problems by imposing a nominal fine and he cautioned too-ardent fishermen.

PULP & PAPER is indebted for interesting reports and material on France to André Lourdelet, president and general manager of the company, S.A. Cartonneries Lourdelet-Maricot; J. E. Usse, of S.A. La Cellulose du Pin; René Leclerc of S.A. La Cellulose du Rhône, and R. Esselin, editor-in-chief of the excellent French industry magazine, "Papier, Carton et Cellulose." They follow:

### By ANDRÉ LOURDELET

President and Gen. Mgr. S. A. Cartonneries Lourdelet-Maricot

Aubervilliers

The year 1955 has been, for the French pulp, paper and board industries, a year of general progress although on the whole this progress has not been as great as that which took place in 1954 as compared with 1953.

In the field of pulp, the past year saw the rise of the new Cellulose d'Alizay, the growth of installations of Cellulose de Strasbourg; and the start-up of Cellulose du Rhone in the last months of the year. These added establishments will have a considerable effect on the production of 1956.

In the field of paper and board, the increased production arises mainly from the modernization of mills, which brought about increased production capacity. These are more important than statistics can express, if one realizes the fact that a dozen small paper and board mills of minor importance have been definitely closed down, which raises the average production per mill in the French paper industry.

The effort at general modernization of our entire industry continues, in 1956 more than ever, to try to put us in a better position to combat foreign competition.

Nevertheless, there is still much concern due to the fact that many financial burdens, including taxes and the cost of power, are much higher in France than in the other countries of Europe, and we hope that the planned unified organization of Europe, from the economic point of view, will be accomplished in a proportionate manner so that each nation will be on an equal footing.

Many new machines are on order, principally 3 large newsprint machines ordered from the U.S.A. Seven or eight new French-built machines for different paper grades, are either on order or being installed. It is difficult to estimate the increased production capacity which must result from the improvements effected on the existing machines, in paper as well as in board.

A new plan for modernization of the converting industries is foreseen by the Ministerial Director, and a Planning Commission has been formed. On the whole, the French industry hopes 1956 will show progress over 1955 and it is not hesitating to initiate important investments, despite difficulties met on the political and economical levels.

### By J. E. USSE

### S. A. La Cellulose du Pin

Paris
In 1955, the total production of the
French paper and woodpulp industry
climbed to record high levels, up
11% over 1954. A continuous expansion has been the characteristic of
1955. The internal demand in France
has increased because of the considerable development of product consumption. This was a striking characteristic of nearly every field of the
French economy.

The total production of pulp made of wood, straw and other plants, has reached a new record level over 800,000 short tons, which is 8% more than in 1954. This increase is proportionately lower than that of the paper production because pulp expansion had to come first. This should show its full effect on paper production by the end of 1957. The total imports of woodpulp have increased by 12%.

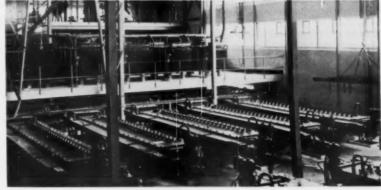
The increase in woodpulp was irregularly distributed; mechanical pulp production increased 3%, unbleached sulfite, 2.5%, unbleached soda pulp, 10%, and bleached pulps, 43%.

Before the last war, the percentage of bleached pulps used in France was 8.38%, it was 12.61% in 1954 and it is now 13.25%.

The percentage of soda pulp used has also increased from 11.91% in 1954 to 12.56% in 1955. However, consumption of unbleached sulfite pulp tends to decrease, from 13.97%







QUALITY PULP WITH ESPARTO OR ALFA GRASS. Here are three views of the new French mill, Société Cellulose du Rhône, sent to PULP & PAPER by M. Rene Leclerc of that company. (Top) Aerial view of 75-tons per day pulp mill. In foreground are stacks of alfa grass. At back, to left, is town of Beaucaire. To right across Rhône River is town of Tarascon. (Middle) The Neyret Beylier pulp press with Comessa dryer. The production capacity is 65 tons per day of alfa pulp at 85% dryness, or about 700 g/m<sub>2</sub>. (Lower) The electrolysis plant where Tarascon mill makes chlorine for bleaching. (Photos by Aerienne Martin-Arles and Photo Studio Richard).

in 1954 to 13.13% in 1955, Mechanical pulp decreased from 26.31% in 1954 to 25.57% in 1955.

Waste paper consumption is continuously increasing—from 38.76% in 1954 to 39.15% in 1955.

With regard to the paper industry, a shortage in the supply of resinous wood and of pulp is to be expected, for there are some doubts as to the possibility for France to continue imports costing annually more than 40 milliards francs. The wide use of hardwood for pulp will tend to make

France more independent of foreign supply.

### By R. ESSELIN

### Editor-in-Chief, "Papier, Carton et Cellulose"

Paris

The latest figures of French pulp and paper manufacturing show new high records in many grades. Expansion is on in full force.

We are able to send you some pictures of the new pulp mill of the



Société Cellulose du Rhône through the cooperation of M. Rene Leclerc of that company. This plant is located at Tarascon, on the right bank of the Rhône River, on which it has a loading and unloading dock. It started operating in late July 1955, only 16 months after construction began. It is set up to produce about 75 short tons a day of bleached pulp made from alfalfa grass (esparto). Cooking is done by the Kamyr process. Bleaching is in five stages. The required chlorine for bleaching is produced at the plant by the owners by electrolysis process.

A second mill unit is already in process of installation and will be producing by Oct. 1957. This mill will use pine, instead of alfalfa, and will make about 50,000 short tons of bleached kraft pulp per year. The company's works are connected by a branch to the Paris-Marseilles railway.

Other new pulp mills are at Tartas, Couze (S.A. Tanins Rey), Cellulose de Strasbourg, La Rochette, and the installation of three new newsprint machines in France will have a strong impact on the industry economy.

### FRANCE—PAPER PRODUCTION

(in thousand	s of shor	t tons)	
	1953	1954	1955
Straw paper	104	125	133
Kraft paper,			
other coarse	367	400	461
Writing, printing	720	822	888
Strawboard	32	9	10
Other board	280	338	373
Thin papers,			
specialties	74	97	110
	1,577	1,791	1,975

#### FRANCE: 150 Years of Paper

Annual Production of Paper and Board
(in short tons)

									(1	in	í.	si	10	17	Ė	8	61	N.	r)					
Year																								Tons
1800			۰																					22,000
1850								0	۰															55.000
1900		0			0	0				0	0						0						0	450.000
1914			0	0			0	0	0		0									0		0		900.000
1938	0	0			0			0					0							۰				1.289.000
1949				0								0	۰							0	0			1.260.170
1950		0											0	0										1.450,270
1951													0	0						0				1.719.950
1952				0									0	0						0				1.358.500
1953			, .																					1.576.000
1954																								1.792.000
1955																								1.972.850

### FRANCE: WOOD PULP

(in thousands of short tons)

	(300 0100	(sm snowsanus of smort tons)										
		mical	Mech									
	Produced	Consumed	Produced	Consumed								
1938	148		230									
1949	243	531	291	371								
1950	261	606	320	420								
1951	305	691	349	497								
1952	226	510	308	396								
1953	258	590	326	408								
1954	311	664	369	471								
1955	379	809	378	504								

### WEST GERMANY

### Timber Resources Limit Paper Production in Free Germany

Population: 52,300,000, includes West Berlin: Per capita paper consumption: 121 lbs. Paper mills: 344; Woodpulp mills: 23; Straw or vegetable fiber mills: 3.

Production (short tons)	1954	1955
	2,537,088	2,772,816
Chemical woodpulp	717,284	744,734
Groundwood	618,555	661,506
Straw & other pulp	53,627	53,955
Paper imports	357,792	454,728
Paper exports	63,184	75.892
Woodpulp imports	466,059	535,404
Woodpulp exports	50,381	49,840
Principal paper grad	les made:	
Newsprint		271,007
Kraft		177,636
Sulfite		727,624
Book and Writing	TV.	537.620
Paperboard	5	
		714,003
Special papers		344,874
		*** * *

Principal paper imports from: Finland, Sweden, Netherlands, Austria Principal woodpulp imports from: Sweden, Finland, Austria, U.S.A. Principal paper exports to: Netherlands, Great Britain, Denmark, Brazil Principal woodpulp exports to: France, Italy, Netherlands, Austria

MAX A. SCHMID, former president of Zellstofffabrik Waldhof of Weisbaden. Germany, has retired. He was succeeded by HANS C. RADE-MACHER.



Wiesbaden

The outstanding economic recovery of West Germany's paper industry continued in 1955—a year which saw its per capita paper use rise to a new high (121 lbs.) and paper production up 9% over 1954, which had been its best year to date since the end of World War II.

Expansion, however, slowed down over 1954, due to two factors: The capacity of most mills was fully utilized, and, limited timber resources prevented any substantial boost in production. As a consequence, the growing demand for paper was met by increased imports. Paper and board import was up 30%, woodpulp was up 15%. The output of chemical

### WEST GERMANY-PAPER PRODUCTION

(In Thousands of Short Tons)

	Woodfree Bo	ook		Total Paper (Includes other	Paper
	Writing	News	Kraft	grades)	Board
All Germany:					
1939	242	504	278	2,956	1,057
West Germany:					
1949	35	140	123	983	407
1950	69	187	145	1,258	464
1951	64	178	157	1,438	548
1952	68	191	111	1,382	487
1953	86	223	151	1,622	548
1954	100	251	160	1,889	648
1955	101	271	178	2,059	714

### WEST GERMANY-WOODPULP PRODUCTION

(In Thousands of Short Tons)

		Rayon	Sc.		
For P	aper	Dissolv	- Straw-	Total	Ground
Sulfite	Kraft	ing	Esparto	Chem.	Wood
1,022	130	302	94	1,545	1,150
343	3	97	23	466	362
444	1	128	36	610	435
468	1	179	46	694	506
425	1	135	. 42	603	488
445	1	170	47	663	525
534		183	54	771	645
532	Name of Street, or other Designation of Street, or other Desig	273	54	799	662
	Sulfite 1,022 343 444 468 425 445 534	1,022 130  343 3 444 1 468 1 425 1 445 1 534 —	For Paper Subfite Kraft lng 1,022 130 302 343 3 97 444 1 128 468 1 179 425 1 135 445 1 170 534 — 183	Substite     Kraft     ing     Esparto       1,022     130     302     94       343     3     97     23       444     1     128     36       468     1     179     46       425     1     135     42       445     1     170     47       534     —     183     54	For Paper Sulfite Kraft Dissolv - Straw-ing Esparto Chem.  1,022 130 302 94 1,545  343 3 97 23 466 444 1 128 36 610 468 1 179 46 694 425 1 135 42 603 445 1 170 47 663 534 — 183 54 771

### WEST GERMANY—PULPWOOD

(In Thousands of Cords)

(	Produced	Imported	Total Received	Total Consumed
1939 (All Pre-war Germany)	1,986	930	2,916	3,390
1949 (U.S., British Zones)	876	69	945	844
1950 (West Germany)	1,082	216	1,298	1,290
1951 (West Germany)	1,364	384	1,748	1,489
1952 (West Germany)	1,074	381	1,455	1,363
1953 (West Germany)	966	294	1,260	1,461
1954 (West Germany)	1,329	470	1,799	1,682
1955 (West Germany)	1.281	685	1,966	1.718

pulp was up only 4% over 1954. Nearly two-thirds of the paper and board imported was either newsprint or kraft.

West Germany still has a way to go. Although its per capita use of paper is now higher than it ever was, even before Hitler's demise, it still lags behind some other European nations. The paper industry is also hurt by the Iron Curtain. (Almost 50% of Germany's pre-war paper production was in what is now East Germany and Poland.) Loss of capacity has been particularly felt in the case of pulp and raw materials. Almost a fourth of the Reich's forest land was in the east. And war damage has estimatedly cut about 20% more off production in West Germany, although this is being built back up.

NOW A NET IMPORTER . . . In spite of the large sums of money being spent in West Germany, the Federal Republic is now a net importer of paper while pre-war Reich was a net exporter. Nonetheless, the net capacity of West Germany is now estimated at about two million tons (75% of it paper, 25% board) and 1,200,000 tons of mechanical and chemical pulp.

veloping a series of chemically treated packing papers designed to preserve the product packaged against fungi, bacteria, corrosion, etc.

One thing which has helped Germany's attempts at rebuilding its paper industry (it now has 334 paper mills—four more than last year) are its splendid forestry practices. Some 85% of German forests are now under good forestry practices, 10% fair and only 5% poor. But the big drawbacks,

in addition to these limited forest reserves, are the lack of investment capital to modernize the industry's relatively low mechanized equipment and the high price of raw materials. Future expansion efforts, therefore, will probably be concentrated on improving production methods.

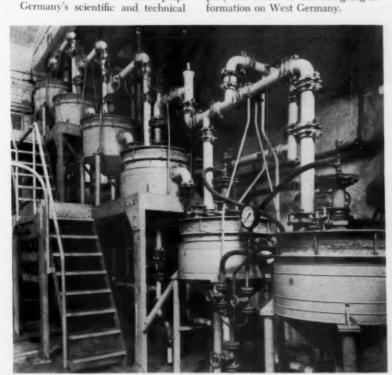
minds, meanwhile, are continuing to

seek new and exciting uses for paper

and for its development. The German

chemical industry, for instance, is de-

"Prices this year have been stable in general for both paper and pulp and are expected to remain the same this year," write officials of Zellstofffabrik Waldhof, the big West German paper mills. PULP & PAPER is again indebted to the Waldhof company for much of this foregoing information on West Germany.



HOW CHLORINE DIOXIDE IS MADE IN WEST GERMANY. "Clever" German bleach liquor process, according to Max A. Schmid, now retired as President of Germany's big Waldhof Paper Mills, but still a director, is this Kesting ClO<sub>2</sub> process at Waldhof's Kelheim sulfite mill. Mr. Schmid says this sulfite chlorine dioxide process, while requiring higher initial investment, actually is cheaper to use because operating cost is much lower than others. The German process is being modified and introduced for first time in America at Brown Co., Berlin, N. H., U.S.A. It is to be known as the Day-Kesting process, for Dr. George A. Day of the U.S.A. and Dr. Edelbert Keşting of Munich, Germany.

### **SPAIN**

### Modernization Proceeds Slowly; Increase in Corrugated Boxes

Population: 29,087,387; Per capita paper consumption: 17 lbs. Paper and board mills: 201; Woodpulp mills: 18 Straw or vegetable fiber pulp mills: 30 Production (short tons) 1954 1955 249,374 253,250 Paper Chemical pulp Mechanical pulp Straw or other pulp 7,889 30,030 7,920 39,930 72,560 6,600 7,700 440 Paper imports Paper exports Woodpulp imports 440 77,000 Principal paper grades made: Newsprint, kraft, paperboard, cigarette, book and writing. writing.

Principal pulp and paper imports from:

Sweden, Norway, Finland

Principal paper exports to: Portugal,

Philippines, Ecuador.

#### By ANTONIO DE SABATES General Manager La Papelera Espanola

Madrid

Paper manufacture in Spain advances and increases yearly. The industry, although slowly, is making modern improvements. Spain is a country in full reconstruction of its whole industry, the units having been unrenewed for a long time, by reason of our Civil War against Communism.

A new improvement is installation of a modern process of black liquor recovery in the Aranguren (Biscaye) mill, devoted to soda kraft production.

In cooperation with St. Regis Paper Co., our company intends to modernize all its production plants, for industrial packing applications such as cement, flour, sugar, etc.

The actual bag production (of Papelera Española and other factories) represents 60,000,000 units per year, specially to cement and chemical factories. The development of this industrial feature is very important and hope that these figures will duplicate in a very few years.

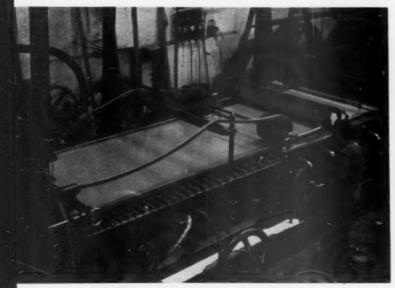
Another aspect of the paper industry in Spain is the increase of corrugated strong board boxes, to replace wood boxes. The experimental exports in fruits, oranges, lemons, etc., have been a success. To serve this new market, Papelera Española has virtually modernized all of its plants.

### SPAIN—PULP PRODUCTION (In Short Tons)

	Chemical Pulp	Ground- wood	Straw	Total
1935 1949 1951 1952 1953 1954 1955	4,504 6,123 6,820 5,797 6,520 7,920	16,537 21,353 28,550 37,171 28,732 34,280 39,930	6,615 12,224 20,915 32,630 29,502 27,931 78,639	34,177 103,293 158,731 195,641 149,223 160,495 126,489



AT THE ESPERANZA MILL in Tolosa, a machinetender watches as bright green cover paper forms on his Fourdrinier wire. The machine is over 100 years old.



FOURDRINIER WIRE IS ONLY 67 INCHES WIDE on this old Spanish machine. At night, machine crews, wearing wooden shoes, carefully polish the brass rails. Note the old style deckle straps.



THIS IS A CHANGING SCENE. Senor Ruiz de Arcaute, who owns and operates La Esperanza mill, inspects this ancient "gang" pulp grinder, soon to be replaced by a modern American Dilts Hydropulper.

### Spain—A Change Is Coming

The face of industry is changing every day-in every part of the world. But the face of the people rarely changes. This is especially true in some parts of Spain, where customs and ideas have remained the same while industrialization passed the people by. Last year, Harry Carruth, Director of Employe Publications for The Mead Corp., Chillicothe, O., journeyed deep into the angry Pyrenees Mountains and visited three paper mills. The methods were old, the machinery antiquated by American standards. The people were surprised to hear that a loaf bread costs twice as much in the U. S. A. as it does in Spain but they were even more surprised to learn that it takes an American only 10 minutes to earn that same loaf, while the Spaniard must work two hours for his. PULP & PAPER here gives you a view of Spain as it is today in these excellent pictures by Mr. Carruth. Today, there is a great deal of activity in the mills. There is a definite trend toward modernization. With the national production of steel and new machinery industries boosting industrialization, papermaking in Spain is due for a big change. But the people who make the paper probably will never change. They'll go right on living the way they have for centuries, operating their gleaming new machines by day, and living by century-old tradition and custom by night.

"A JUG OF WINE . . ." On Saturday night, this machine-tender relaxes in a local cafe, squirts cool wine into his mouth from his "perron." This is quite a trick, the squirting of the wine. His favorite drink—apple cider.



The groundwood, semi-chemical and chemical mills started up some years ago, will help to relieve import restrictions on Swedish pulp, due to currency difficulties. United States and Canada imports of hard pulp, kraft and crude bisulfite are examples of Europe's import difficulties and explains our wish to become our own producers.

During 1955 a new paper mill was erected by "Papelera del Nervion" which also produces paper bags. Two manufacturing groups are announced as planning mills using Castilla straw. The Malvarrosa (Valencia) plant of "Papelera Española" will be enlarged 50% for manufacture of fine grades produced since 1950 from rice straw.

Pulp production in full scale from eucalyptus is already decided upon by an important concern of the "Instituto Nacional de Industria." It will be in operation in four years with a capacity of 26,000 short tons per year. Most of this pulp will be destined for rayon and the surplus for paper manufacture. The investment will represent at least 300 million pesetas.

SWEDISH EQUIPMENT FOR WALLBOARD MILLS . . . AB Defibrator, of Stockholm, Swedish experts in the field of wallboard factory equipment, are designing a new hardboard mill with an annual output of about 10,000 tons in Galicia for the Spanish company Tableros de Fibras S.A. Furthermore, the latter company's mill in Valladolid will be ex-



ANTONIO DE SABATES, Gen. Mgr. of Spain's biggest paper company, sends news again to WORLD REVIEW NUM-BER of PULP & PAPER.

tended for an annual output of 18,000 tons of hardboard, while a new department for 7,000 tons of porous board is to be built. Most of the machinery equipment will be supplied by Swedish firms.

### **SWEDEN**

New Records, 7-Day-Week Trend, Farmers Invest in New Mill

Population: 7,290,000. Per capita paper consumption: 200 lbs. Paper mills: 52. Woodpulp mills: 134 Production (short tons) 1954 1955 Paper 1,536,000 1.647,000 Chemical woodpulp 3,121,000 3,321,000 Mechanical woodpulp 850,000 937,000 Paper exports 868,000 916,000 Paper exports Woodpulp exports 2,453,000 2,537,987 Principal paper grades made: Newsprint, kraft, paperboard

Principal paper exports to: U.S., Germany (East and West), Belgium, Netherlands,

Denmark
Principal woodpulp exports to: Britain,
France, West Germany, U.S.A., Italy,
Netherlands, Belgium, Brazil, Spain

### SPAIN-PAPER PRODUCTION

(In Short Tons)

	Fine	Tissue	Newsprint	Kraft	Paperboard	Printing Paper	Total
1949	10,397	1,653	19,536	4,762	23,686	96,631	156,665
	12,429	2,205	22,020	5,179	29,038	117,317	189,292
	13,115	2,415	25,270	6,100	32,500	122,350	201,750
	13,410	2,750	25,550	10,536	36,448	123,957	212,648
	15,378	1,663	23,166	11,743	55,352	85,064	200,323
	15,080	3,540	34,475	19,430	34,742	147,107	254,374
1955	14,520	5,720	36,562	24,220	40.832	102,300	253,250

### PROBABLE DEMAND-PAPER & BOARD (Based on a 4 % and 5 % rise in per capita income)

(Based on a 4% and 5% rise in per capita income)

			sprint cap.	Newsprin	Other than nt & Board r cap.			aper & Board r cap.
Year	%	lbs.	tons	lbs.	tons		lbs.	tons
1957	4	3	41,472	15	248,187		20	289,660
	5	5	44,381	19	272,334		22	316,716
1962	4	4	56,798	22	339,928	1/20	26	385,732
	5	4	65,185	27	409,589		31	474,775
1967	4	5	77,689	30	464,861		35	542,551
	5	6	95,543	39	615,139		45	710,683
			m		-			

### PULP-PROBABLE DEMAND

Year	%	Mechanical Pulp	Chemical Pulp	Total.
1957	4	59,246	151,821	211,067
	5	65,144	166,445	231,616
1962	4	81,148	207,939	289,088
	5	94,785	250,131	344,916
1967	4	110,986	284,367	395,352
	5	140.185	375.352	515.537

Prepared by PULP & PAPER from the economic study, "Future Demand for Paper & Board in Spain from 1952 to 1967.

Stockholm

Sweden's aggressive pulp, paper and board industries soared to new heights in production and exports. Its ambitious expansion plans may be directly affected by high pulpwood exports which in 1955 climbed to over one million cubic meters, about a 100% increase over 1954. These insatiable demands for pulpwood come from Norway, West Germany and Hungary, and some Swedish pulp producers fear a shortage for woodpulp in Southern and Central Sweden.

The trend toward a 7-day-week operation continues to gain momentum. Begun 3 years ago by the Swedish Cellulose Co. at its Essvik sulfite mill (PULP & PAPER's 1954 WORLD REVIEW NUMBER), some 24 mills (18 pulp; 6 paper mills), are climbing on the bandwagon, with about 10 others contemplating the change. The Essvik mill manager says that since 1953, with the same labor force, they have increased production by 10,000 tons to 50,000. Every other Sunday is a work day.

A new package testing laboratory has been set up in Stockholm by the Swedish Package-Testing Assn. to initiate research and to solve problems in packaging. Sweden's packaging appetite is placed around \$200,000,000 a year.

MORE MARKET PULP PRO-DUCED . . . Total production of chemical pulp in 1955 exceeded the 3 million ton mark for the first time with some 3,311,000 short tons; up about 6%. Market pulp was about 2,431,000 tons in 1955 vs. 2,294,000 tons in 1954. Domestic consumption of market pulp was around 253,000

Mechanical pulp for market sales was around 440,000 tons vs. 412,500 tons in 1954. About 27,500 tons of this was earmarked for home consumption.

Some 29% of chemical woodpulp exports (618,200 tons) went to the United Kingdom vs. 566,500 tons in 1954. France increased her imports from Sweden considerably, maintaining her position as No. 2 buyer for the second straight year, having replaced U.S.A. in this position. Total chemical pulp exports to France in 1955 were 264,000 tons vs. 238,700 tons in 1954; 198,000 in 1953. West Germany is No. 3 chemical pulp buyer, taking some 240,900 tons in 1955, an increase of 16,500 tons over 1954.

To the U.S., Sweden shipped about 182,700 tons; about 22,000 tons under 1954 but higher than had been anticipated.

Special arrangements for payments permitted resumption of large ship-



ments to Argentina; 51,700 tons in 1955 vs. 31,900 tons in 1954.

Mechanical pulp exports, too, hit a new high: 422,400 tons, exceeding 1954 by 33,000 tons, setting a second-straight year record. United Kingdom was the principal customer taking about 62% or some 265,100 tons vs. 238,700 tons in 1954. The U.S. took about 9,295 tons.

Swedish chemical pulp exports of 2,109,800 short tons were worth about \$283,600,000.

NEW RECORD FOR PAPER . . . Paper and board output, too, shared the limelight. An estimated 1,650,000 tons of paper and board was produced with about 682,000 tons being consumed at home vs. 649,000 tons in 1954. Exports soared to a new record of 913,000 tons, compared with 866,800 in 1954, with a value around \$160,000,000. Most of the increase was kraft and high grade paper.

Board was about the same. Europe took a greater share of paper and board exports: 610,500 tons, up from 566,500 tons in 1954. South America took about 91,300 tons vs. 85,140 tons in 1954.

Great Britain still ranks as Sweden's No. 1 paper customer but import restrictions prevent Swedish mills from stepping up exports to pre-war levels, with the exception of newsprint. Sweden shipped Britain some 53,900 tons of newsprint in 1955 and about 181,500 tons of other paper grades. West Germany bought about 94,613 tons. Import levies in France minimized Swedish paper exports to that country to about 16,500 tons.

# NEW WALLBOARD MARKS . . . Swedish wallboard reached new peaks with a production rise of 17.5% to 466,400 tons and an export rise of 20% to 292,600 tons.

Great Britain purchased about 45%, or 127,710 tons, vs. 100,900 tons in 1954. The Netherlands continued second, taking 10% more than 1954, or 35,200 tons. The U.S. was largest overseas market with about 20,900 tons, up from 16,060.

WILL CONTINUE TO MAKE MORE PULP . . . As for 1956, pulp production is expected to rise another 5% or about 110,000 short tons.

The new Forestowners Pulp Co. (Skogsagarnas Cellulosa AB), will get underway this summer with a 77,000-

#### **SWEDEN—Paper Exports**

(In thousands of short tons)

Total

	News	Kraft	Sulfite Wrapp'g	Greasepr'f Parchm't	Board	(Includes all other grades)
1937	 222	202	128	24	69	694
1946	 141	147	82	18	61	493
1949	 233	206	90	25	75	683
1950	 226	256	105	30	130	816
1951	 222	261	110	29	124	811
1952	 240	192	61	21	67	624
1953	 227	262	76	26	126	784
1954	 213	314	88	27	154	868
1955	 218	343	92	29	155	916

Source: Authoritative-Special to PULP & PAPER

#### SWEDEN-Pulp Produced

(In thousands of short tons)

	Mech.	Sulfite Bleached	Sulfite Unbl.	Sulfate Bleached	Sulfate Unbl.	Total Chem.
1937	 809	514	1,290	96	1,176	3,076
1946	 747	556	802	132	777	2,267
1949	 700	671	757	223	828	2,479
1950		735	831	272	869	2,712
1951	 800	772	858	319	904	2,853
1952	 751	698	774	327	793	2,592
1953	 612	762*	756	342**	771	2,777
1954	 850	860*	850	426**	985	3,121
1955	 937	929*	896	450**	1,046	3,321

Source: Svenska Cellulosaforeningen, Stockholm.
\*including dissolving sulfite pulp (322,000 tons in 1953, 403,700 in 1954, 413,000 in

\*\*dissolving grades included.

### SWEDEN—Paper and Board Produced

(In thousands of short tons)

	News	Kraft	Fine	Board	(Includes all other grades)
1937	303	249	79	135	1,004
1946	290	254	110	162	1,074
1949	345	302	110	168	1,186
1950	358	345	112	210	1,301
1951	200	369	133	231	1,401
1952	DOF	306	122	157	1,202
1953	270	371	123	207	1,352
1954	. 373	442	137	260	1,536
1955	397	469	155	264	1,647
Source: Authoritative-	-Special t	to PULP & P	APER		

### SWEDEN'S WOODPULP EXPORTS TO ALL COUNTRIES AS COMPARED WITH EXPORTS TO THE UNITED STATES

(In Short Tons)

Years	Bleached Sulfite	Unbleached Sulfite	Bleached Sulfate	Unbleached Sulfate	Ground- wood	Dissolv-
1938 (To All Countries)	304,078 156,340	571,077 710,709	92,793 13,088	575,508 70,889	297,420 10,600	
1945 (To All Countries)	262,146 56,496	49,787 283,959	43,273 28,070	536,114 274,429	314,054 27,933	
1947 (To All Countries)	445,607 40,076	530,569 218,918	136,701 56,282	462,120 201,440	223,852 12,532	
1949 (To All Countries)	578,965 42,130	530,448 129,902	197,380 70,013	496,287 106,160	284,350 7,547	
1950 (To All Countries)	632,082 49,350	609,404 99,562	250,326 89,663	501,324 103,932	312,224 12,763	
1951 (To All Countries)	601,114 30,522	526,089 51,344	267,647 71,765	455,863 58,562	326,661 6,767	
1952 (To All Countries)	490,747 26,776	406,386 61,356	248,861 72,714	352,272 41,855	296,231 12,634	
1953 (To All Countries)	385,133° 45,262	584,020 79,408	355,787 106,635	521,267 65,091	341,105 14,744	409,782 3,773
1954 (To All Countries)	273,680 22,330	574,310 44,110	337,370 88,330	465,630 49,170	396,000 13,403	407,440 1,320
1955 (To All Countries) 1955 (To U. S.) ** Main part of dissolving is bleached Source: Svenska Cellulosajoreningen, St	329,699 18,706 sulfite.	557,097 27,772	346,698 81,744	475,246 54,825	424,101 9,313	405,146 28

ton sulfate pulp mill, expected to cost about \$18,000,000. This is a cooperative ownership and will use pulpwood principally from forest holdings of its owners, who are mainly local farmers, who subscribed to capital stock. This is intended to assure the farmers of a good, steady outlet for surplus pine as well as a profit from pulp.

The government-owned AB Statens Skoginstrier plans to build a new pulp and paper mill at Otterbacken on Lake Vanern, at an estimated cost of around \$16,000,000. Capacity is set at \$2,500 tons of bleached and unbleached kraft pulp.

Katrinefors AB, a subsidiary of the Swedish Match Co., plans a new mill at Mariestad, on Lake Vanern, for semi-chemical pulp from hardwood, designed for about 11,000 tons.

The Mo & Domsjo Co. reports that its cellulose production in 1955 reached a record of 281,600 short tons; 8% over 1954. Kraft pulp production was around 130,000 tons, up 7% and sulfite up about 10%.

The Bergvik and Ala Co. has a permit to put in a bleach plant at its kraft mill at Vansater. Start-up is expected in 1958 and the mill will use hardwood.

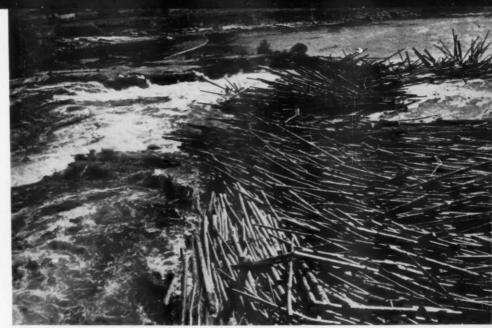
### NORWAY Spokesmen See Threat From Growing U.S.A. Exports

Population: 3,400,000.	Per ca	pita paper
consumption: 159 lbs. Paper and board mills: Pulp mills: 68	55	
Production (short tons)	1954	1955
Paper	625,900	656,040
Chemical woodpulp	649,000	
Mechanical woodpulp	708,400	713,251
Paper imports		11,220
Paper exports	391,600	374,935
Chemical woodpulp	317,000	323,295
Mechanical woodpulp exports	423,500	443,218
Principal grades: New fite, book and writing,		

Principal pulp and paper exports to: U. K., France, Netherlands, Denmark, Australia

In this land of the midnight sun, pulp and paper made headlines repeatedly in 1955. Some samples: The new Zimmermann Sterling Drug recovery and burning process installed in a pulp mill; the first atomic energy power plant for a pulp mill; record-breaking pulp production, coupled with a continued rise in per capita paper consumption (up from 140 lbs. in 1954 to 159 lbs. in 1955).

Danger from North America in the guise of stiffer competition in world



THE LOG JAM! Most dangerous but exciting event of the log drive, workers feverishly strive to extricate key log and unleash flow of logs on their way to mill in the Glomma River.

markets for pulp and paper is seen by Norwegian industry officials. Arne Meidell, managing director of A/S Borregaard, Norway's biggest company, said that competition in the pulp and paper markets was increasing largely because of growing U.S.A. production.

But Norway, for the second successive year, broke its old 1937 record for chemical pulp production—reaching an all-time high of 680,158 short tops

"We're trying to strengthen our position by specializing in particular types of chemical pulp and high grade paper and by extending our production of chemicals based on alcohol," he said.

Borregaard expects to hit the 4,400,000 gals./year mark of 100% alcohol for processing into chemicals, principally plastics. Another move by Mr. Meidell's company was the recent announcement that it would set up a \$3,000,000 plant for the first large-scale industrial application of the Zimmermann process for converting organic waste liquors into power. This would enable Borregaard to save an estimated 55,000 tons of fuel oil, costing about \$1,200,000 a year. (For the first authoritative commercial application of the Zimmermann process, see PULP & PAPER. May 1956).

The plant will be at Sarpsborg, near Oslo, and will convert waste pulp liquors into steam for process use. Other advantages claimed are the elimination of stream pollution and the recovery for re-use of inorganic chemicals. Borregaard is exclusive agent for the process in Europe.

The Norwegian Institute for Atomic Energy proposes to build an atomic reactor with a capacity between 10,000 and 20,000 kw, near the pulp and paper mills of Saugbrugsforeningen, Norway's second largest steam user (100 tons/hr.) The reactor could supply 10 to 20 tons.

DROUGHT HITS MILLS . . . Norway's forests (19,000,000 acres), rivers and water power provide for a thriving pulp and paper industry. However, water power, due to a drought last summer, presented some difficulties but by carefully planning their

### NORWAY—Paper Produced

(in thousands of short tons)

	1	Paper	Board	Total
1937		457	44	501
			45	530
1951		514	49	564
1952		466	49	515
1953		-		555
1954		581	44	625
1955		582	74	656

### NORWAY—Paper Exports

(in thousands of short tons)

Wrapping News Other Board Total 195 382 1937 100 325 361 1950 82 164 82 152 101 31 27 366 1951 131 287 1952 65 64 63 145 104 338 1954 46 149 152

### NORWAY-Pulp Produced

143

(in thousands of short tons)

	Mech.	Sulfite	Sulfate	Total Chem
1937	 599	527	82	609
1946	 308	207	46	253
1950	 590	449	84	533
1951	 613	491	93	584
1952	 569	454	92	546
1953	 637	481	92	573
1954	 708	554	95	649
1955	 713	571	106	680

NORWAY-Pulp Exports

		sands of s			
	Mech.	Sulfite Bleached	Sulfite Unbl.		Total Chem.
1937	 322	298	56	16	370
1946	 91	86	2.2	5.5	94
1949	 289	202	0	9	211
1950	 344	236	6	16	258
1951	 369	238	0	15	253
1952	 352	220	0	16	236
1953	 339	184	6.8	18	477
1954	 423	178	13	21	316
1955	 443	160	10.5	21	324

production schedules and by maximum efficiency in use of existing water power, mills were able to pull through, although some production loss ensued.

The forests of Norway make up about 25% of its 124,710 sq. mi. (about one-half the size of Texas). The bulk is conifers—about 15 million acres and about 4 million in hardwoods, mostly birch.

Through better forest management, subsidized bogland drainage, intensive research and reforestation, Norwegian officials hope to place timber production abreast with the growing need for commercial timber.

Some 65 million seedlings were planted in 1955 vs. 55 million in 1953.

An ambitious reforestation program to turn the coastal areas into valuable woodlands has been successful. In 1955, some 35 million young trees were planted along the Norwegian coast. Target for the West Norway reforestation program calls for planting some 900,000 acres, including 500,000 acres of barren land, over a period of 60 years.

In the field of pulp production, the industry for the second straight year broke records with its 680,158 tons. Sulfite pulp production was 571,000 tons and kraft pulp, 106,328 tons,

approximately.

MAJOR EXPANSION BY UNION CO. . . . A major expansion of newsprint production is planned by the Union Co., which operates seven pulp and paper mills in South Norway. It has ordered a Voith newsprint machine with a capacity of nearly 50,000 short tons/year. Scheduled for delivery by late-1956, the 426-ft. long machine will replace three smaller units in operation at Union's Skien plant. Net increase in newsprint production is expected to be 33,000 short tons/year. The company expects to earn the cost of the new machine in less than a year. Annual output of.



BLENDING PULP in stock chest at A. S. Borregaard, Norway's largest company.

newsprint in Norway is now around 160,000 tons.

In connection with the machine, a new groundwood mill with capacity of 44,000 short tons has been built. At Skien, Union has been reconverting its pulp mill to produce sulfite from low grade pine and mill waste. Experimental production of newsprint from sulfite pine pulp, started in early-1955, has been very satisfactory, and by mid-1956 all available supplies of low-grade pine were to be used for sulfite pulp. This is the Stora Kopparberg process.

Union's seven mills produce annually 132,000 tons of paper, 148,500 tons of mechanical pulp and about 57,200 tons of chemical pulp.

NEW RESEARCH INSTITUTE . . . Another notable event in Norway i;



BIG EXPANSION PROGRAM AT UNION CO. MILL at Skien in Southern Norway is underway. Plans include new 50,000 short tons capacity Voith newsprint machine, scheduled for startup late-1956 or early-1957. Here are two machines which help turn out Union's yearly 132,000 tons of paper.

the new building of the industry's Research Institute, near the University of Oslo. The building contains big, well-equipped laboratories with acid-proof floors, several climate-conditioned rooms with aluminum walls, and soon will have a miniature paper machine of German design. Erik Stephansen is managing director.

Norway's newsprint production in 1955 was 190,190 tons; kraft papers, 81,840 tons; sulfite papers, 63,360 tons; book and writing papers, 164,450 tons and paperboard, 73,590 tons.

R. Rolfsen, managing director of the Norwegian Paper Makers Assn., reported that sales of paper and board had been good in 1955. One new paper machine started up and this, plus modernization of several other machines, increased annual capacity by some 22,000 short tons to around 682,000 tons.

Domestic conusmption of paper and board had been higher than ever, he said, about 264,000 tons, a 13% increase over 1954. This is attributed partly to low domestic prices, which had not been raised during the year and which are said to be about the lowest in the world.

Although paper and board exports were lower than 1954, higher export prices yielded greater profits.

THE FUTURE . . . Mr. Rolfsen predicted good sales possibilities in the future but Norwegian mills were facing increasing competition in export markets, he said, partly because some overseas countries had started paper and board production since the war's end. In their prices, and in the quality of their products, he pointed out, these new mills had often been unable to compete with traditional producers, thus forcing their governments to restrict imports.

## DENMARK First Chemical Pulp Mill Completes Year of Operation

Population: 4,500,000. Per capita paper consumption: 166 lbs.
Paper mills: 12. Woodpulp mills: none Production (short tons) 1954 138,000 155,000 Woodpulp 4:070 Paper imports 170,500 175,000 Paper exports Woodpulp imports 5.500 6.000 91,894 98,000 Principal paper grades made: Kraft, Sulfite, Book and Writing, Paperboard, Principal paper imports from: Sweden, Norway, Finland Principal woodpulp imports from: Sweden, Norway, Finland

Fredericia Cellulosefabrik, on Jutland, completed its first year of operation as Denmark's first and only

#### **DENMARK**—Production

(in short tons)

		Pulp	Paper	Paperboard
1939		570	70,000	11,000
1947		120	78,000	19,000
1950		950	91,296	23,507
1951		908	98,933	15,235
1952		2,120	96,000	18,610
1953		3,850	97,023	25,358
1954		4,070	108,300	29,700
1955	1	1.470	120,000	35,000

chemical pulp mill in early 1956. Bleached straw pulp is made here, and its capacity of 8,000 tons a year is about twice the amount of mechanical woodpulp made in the little country. The pulp is of a quality suitable for printing papers.

Fredericia Cellulosefabrik is owned half-and-half by a farmer's cooperative (their raw matterial is used) and United Paper Mills. The latter company is the largest by far in the pulp and paper field, producing about 90% of Danish paper in 6 mills. The Danish name of the company is De Forenede Papirfabbriker. Serving PULP & PAPER with news from Denmark is E. Persson of this company.

Woodpulp imports reached new high records for Denmark and domestic production was highest in Danish history.

### FINLAND General Strike Is 1956 Blow But 1955 Saw New Records

Population: 4,300,000; Per capita paper consumption: 124 lbs. Paper, board and fiberboard mills: 47 Woodpulp mills: Sulfite 20; Mechanical 26; Sulfate 9

26; Sulfate 9
Production (short tons) 1954 1955
Paper (inc. board) 1,215,000 1,434,000
Chemical woodpulp 1,734,000 2,012,000
Mechanical woodpulp 788,000 859,000
Wallboard pulp 146,000 154,000
Paper exports 935,000 1,113,000
Woodpulp exports 1,266,000 1,445,000
Principal paper grades made: All kinds
Principal paper exports to: U.S.A., U.K.,
East Germany, Soviet Union, Brazil,
Denmark, Argentina, India
Principal woodpulp exports to: U.K.,
U.S.A., France, East Germany, Poland,
Brazil, Argentina, Italy

Ualciple

Surveys showing more abundant forest resources than earlier reports continue to give dramatic impetus to Finland's ambitious 10-year expansion program. Goal: 1,000,000 additional tons of pulp by 1965.

The score to date: 1954–2,667,000 short tons produced, up from 2,125,000 tons in 1953. In 1955, production was up again; 15% this time to hit the 3,125,000 mark.

This 15% increase was virtually



RECORD LEVELS OF PULP, PAPER AND BOARD PRODUCTION IN FINLAND are characterized by this sulfate pulp mill of Oulu Oy in Oulu, Finland, which has recently expanded capacity to some 150,000 tons a year.

uniform in all segments of the pulp, paper and board industries. Finnish experts see another good year in 1956. The one thorn in the industrial picture was the big general strike in Finland in March which is estimated to have caused a loss of about 77,000 short tons in chemical pulp exports alone. A general decrease of 5% is forecast in 1956 production as a result.

As to expansion, the Finnish Government plans an integrated kraft pulp, newsprint and kraft paper mill, greater than any existing in Finland Some 180,000 tons of kraft pulp, and similar amounts of newsprint, and kraft paper are contemplated in the \$130,000,000 mill, which is expected to take six years to complete. Annual wood consumption is placed around 550,000 cords, part of which would be birch, not previously used for pulp

in Finland.

The Finnish company, Lohja-Kotka Oy, has ordered a kraft paper machine trimming about 162-in. and capable of speeds ranging from 100 to 1,000 fpm. It will have an imported Yankee cylinder, wire suction couch roll, two suction press rolls and a reverse press.

Finnish paper exports hit a new high in 1955 with total exports of 881,000 tons. Newsprint exports of 518,000 tons were about 86,000 tons more than 1954.

## By JUOKO KOLIJONEN Information Chief, Central Assn. of Finnish Woodworking Industries

Helsinki

In recent years, most of Finnish pulp and paper mills have installed new machines and increased their ca-

### FINLAND—Paper Produced

(in thousands of short tons)

					Total	
				Writing	Paper (Includes	Paperboard Cardboard
		News	Wrapping	Printing	other grades)	Wallboard
1937		463	121	56	669	172
1949		425	107	62	623	173
1950		460	123	86	700	237
		458	141	122	756	355
1952	********	480	136	108	755	255
		484	178	123	824	332
1954	**********	493	257	143	934	421
		602	299	136	968	466

### **FINLAND—Paper Exports**

(in thousands of short tons)

												Total	
									News	Wrapping	Writing and Printing	Paper (Includes other grades	Paperboard Cardboard ) Wallboard
193	37								422	101	45	572	133
19	49								384	67	43	502	101
19	50								417	75	59	557	153
19									422	87	90	609	238
19	52								433	85	78	604	143
19									443	122	94	671	206
19									432	183	103	734	267
	55	-	-	-	-	_	-		519	213	137	981	208



pacity and in addition, some new mills have been added. As demand in the world market was steady throughout 1955, it was natural that production and exports of pulp were at record levels.

The most important news in the chemical pulp industry was the increased capacity of sulfate mills and utilization of sulfite waste liquor.

In the new sulfate pulp mill of Joutseno-Pulp Oy, a continuous cooking system is used and both digesters, each with a 100 tons/day capacity, are now in use. Other sulfate pulp mills are increasing their capacity, too.

After completion of the present building phase, the biggest pulp mill in Finland and in Europe, Kaukopaa mill, belonging to the Enso-Gutzeit Oy, will have an annual capacity of 350,000 tons.

The problem of sulfate waste liquor has been urgent because of stream pollution and because of vast amounts of combustible materials, hitherto wasted. Now that successful evaporation and combustion units are available on the market, many Finnish sulfite mills have ordered such units.

TWO NEW PAPER MILLS START

UP . . . The new Veitsiluoto paper and board mill, with an annual capacity of 30,000 tons and Summa newsprint with 80,000 tons, in the first phase, started up in 1955. In addition, some machines in other mills have been rebuilt and modernized. Some of the biggest newsprint machines have added pick-up sections. Speeds of machines have been increased and the highest continuous speed reached in Finland is on the

Summa newsprint machine-1,804 fpm.

The chemical pulp industry produced about 1,826,000 tons in 1955. This industry has great possibilities to expand. In addition to the raw material resources of the unused forests, especially in the northern part, large quantities of pulpwood exported each year show that pulp production can easily be increased by at least 60% to 70%. There are, of course, many problems which have to be solved; the most important being the lack of capital.

Paper production surpassed the one million ton level for the first time in 1955. In all probability, production will continue to increase in future years, the planned rate of increase in the immediate future being about 100,000 tons/year. Growth of the newsprint industry is clearly foreseen.

### THE NETHERLANDS

More Records Broken by Dutch, More Machines are Installed

Population: 10,426,000. Per capita paper consumption: 105 lbs.

Paper Mills: 20; Strawboard Mills: 19 Production (short tons) 1955 Paper (not incl. straw) 468,577 493,602 Chemical woodpulp Mechanical woodpulp 40,000 46,000 71,000 50,000 72,000 50,000 Market straw pulp Strawboard 345,698 382,000 Paper exports principally to: Belgium, U.K., Argentina, Brazil
Pulp imports principally from: Sweden, Norway, Finland

### By HENK VOORN

Editor, De Papierwereld

Amsterdam

The Netherlands paper production is rapidly approaching the half-million (metric) tons level: production reached

e chemical pulp industry proabout 1,826,000 tons in 1955.

HENK VOORN,
36 year old Editor
of "De Papierwereld," Holland's
paper industry
magazine. He
sends news of The
Netherlands to
WORLD REVIEW NUMBER.



in 1955 the all-time record of 448,729 metric tons (493,600 short tons), an increase of 5.4% as compared with 1954, and nearly an increase of 50% as compared with the pre-war level.

There was an increase in production in all five principal types of paper mentioned in the Dutch statistics, but wrapping papers, with an increase of nearly 13,000 metric tons, took the greater part of the additional production. Newsprint production went up from 103,000 metric tons till nearly 107,000 metric tons (117,000 short tons).

Strawboard production is approaching the 350,000 metric tons level, most of which is exported to England, Eire and Belgium.

NEW MILLS . . . In 1955 a small new paper mill came into production, making bituminized paper on an overhauled old paper machine. Another small mill for making wrapping papers, equipped with a rebuilt machine of small dimensions, came into production at the end of the year. A third new mill for wrapping papers, also in the medium-size class, is under construction.

### THE NETHERLANDS

(Pulp Consumption in Short Tons)

	Ground Wood	Chemical Woodpulp	Waste	Rags
1939	15,131	81,525	71,193	10,055
1946	41,846	72,527	11,556	60,095
1948	80,997	102,157	105,108	142,983
1949	80,384	115.208	91.688	17,604
1950	90,100	136,070	97,570	193,604
1951	60,000	36,000	2000	-
1952	63,000	40,000	-	monte
1953	190,000	113,000	*****	
1954	218,000	126,000	*****	-
1955	230,000	140,000	-	-
(Recent	figures are	U.S.A. sou	rces' estir	nates.)

### NETHERLANDS—Pulp Produced (In Thousands of Short Tons— U.S.A. Sources)

									Sulfite	Mech.
1949									35	42
1950									40	66
1951			4					a	38	64
1952									37	63
1953									33	63
1954									40	71
1955									46	72

### THE NETHERLANDS—Strawboard

	Produced	Consumed	Exported
1951	 357,500	112,000	240,000
1952		87,560	140,000
1954	 345,698	126,359	219,339
1955	 382,000	105,000	321,000

### FINLAND—Pulp Produced

(in thousands of short tons)

		Mechanical	Sulfite	Sulfate	Total Chemical
1937		904	1,143	483	1.626
1949	************	659	690	429	1.119
1950	************	793	791	525	1.316
1951	************	889	905	623	1.528
1952		797	786	488	1.274
1953		877	718	530	1.248
1954	*******	934	955	778	1.733
1955	*******	1,113	1,096	907	2,012

### FINLAND—Pulp Exports

(in thousands of short tons)

	Mechanical	Sulfite	Sulfate	Total Chemical
1937	 321	908	392	1.300
1949	 176	495	343	838
1950	 195	566	403	969
1951	 231	655	427	1.082
1952	 158	525	271	796
1953		511	356	867
1954		640	413	1.053
1955	 0.04	750	491	1 2/2

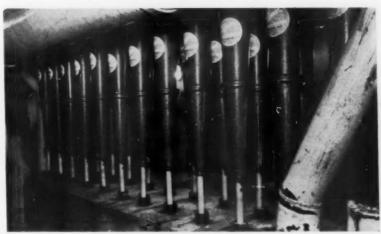
PAPER FINISHING: A NEW . . . Many of the larger Dutch mills show an increased interest in paper finishing methods, such as coating and other procedures to give the paper a new look. One of the largest mills is making Masseymachine-coated papers (Consolidated Water Power & Paper Co., U.S.A., license) but other mills are preparing to equip for other finishing techniques.

MODERNIZING CONTINUES . . .

Orders now in hand by several suppliers of paper machines and smaller equipment, for modernizing, rebuilding and new equipment for Dutch mills, may total to about 50 million guilders (about \$13,200,000). Two new complete paper machines were installed in Dutch mills in 1955, one of which is a very modern machine for making cellulose wadding. At the end of 1956, several other new paper machines will arrive, among which is a machine for cheap printing paper running at 400 meters/minute, a large and very modern newsprint machine. Six other paper machines may arrive during 1956, or early in 1957. Among them will be a Voith-built Yankee which, with its 6 meters (236 in.), will be Europe's biggest Yankee machine.



TECHNICAL HOLLAND'S TOP PAPER MAKERS. C. PAPER MAKERS. C. J. J. NINCK-BLOK (right), Research Director of Holland's big paper company, Van Gelder Zonen, owner of five mills and producer of 50% of Dutch paper, and the firm's Technical Director, A. P. NEEB (left), are shown with FRED H. FROST, Research Director of S. D. Warren Co. of U.S.A., during recent Paper Week sessions in New York. Van Gelder Zonen produced 228,000 tons in 1955; with new installations its capacity will reach 250. installations its capacity will reach 250,-000 tons



BAUER CLEANERS FOR DUTCH MARKET PULP. Here is an installation of Bauer Centri-Cleaners used to upgrade the quality of "DE EENDRACHT" Bleached Monosulfite Straw Pulp—a market pulp in Holland. The Coöp. Stroocartonfabriek "DE EENDRACHT" at Appingedam is one of three Dutch Mills marketing straw pulp. It is the only one making it by sulfite process. The others use the Pomilio-process and bleached kraft process. The Appingedam mill makes some 22,000 short tons a year. More Bauers were added after the original installation to improve cleanliness, reports Eduard Van Leer, agents, in Amsterdam.

FAVORABLE OUTLOOK . . has been a good year and 1956 may be a good year too, as is generally thought. The Dutch paper industry is modern, and continues putting large sums into new equipment. The big Dutch mills may be considered to be among the most modern in the world.

Three mills in Holland make market straw pulp-"De Eendracht" at Appingedam, "Phoenix" at Veendam and Sove" at Arnhem. They produce about 50,000 tons a year.

Sales of straw paper and board in 1955 follows:

### STRAW PULP FOR SALE . . . ALSO BOARD AND PAPER .

The making of straw pulp for market -also of strawpaper and strawboard, which are shipped in large amounts to Britain-is a phase of the Dutch pulp and paper industry which is very important. No other country makes such intensive use of straw for pulp, paper and board, including high quality products. In our total figures for Holland for pulp and paper, estimates of the straw production are included.

This information on the straw industry comes from Mr. Voorn, who is an editor of a paper industry magazine "The Paper World," and also K. Torenstra, of Eduard Van Leer, agents for straw pulp sales.

#### NETHERLANDS-STRAW PAPER AND BOARD

Short tons-sold in 1955

Domestic sales ... 109,800 16,900 126,700 To Britain . 145,200 2,270 147,470 To Eire . . . 7,810 To Belgium 13,750 To Others . 44,660 7,550 52,210 TOTAL . . 321,220 26,720 347,940

### GREECE Straw Mills Ease Demand But Woodpulp Imports Needed

Population: 7,865,000. Per capita paper consumption: 14 lbs. Paper mills: 6. Board mills: 10 Strawpulp mills: 1 Production (short tons) 1955 1954 Paper, paper-board production Paper and paper-board imports 30,000 33,000 20,000 21,000 Strawpulp production none 7,000 33,300 36,800 Pulp imports Exports of paper, paper boxes Leading paper imports: Newsprint, paper-Principal imports from: Sweden, Austria, Finland, Germany, U.S., Italy Principal exports to: Egypt

Greece has a straw pulp mill at Larissa, Thessaly, which was built

THE NETHERLANDS—Paper Production (Not Inc. Strawboard)

(In Short Tons)

News	With		Kraft Paper	Board	Other	Total
 97,329	8,655	47,248	84,655	18,103	23,645	279,635
 78,746	17,233	36,074	107,396	24,758	23,875	304,571
 81,737	17,470	55,207	104,529	20,589	30,630	310,162
 87,680	20,240	66,550	116,500	30,250	29,480	350,900
 100,980	26,180	79,090	168,310	0	29,590	404,470
 106,700	32,670	67,200	128,800	0	27,680	363,880
 106,792	42,147	81,431	166,257		27,935	424,562
 113,437	48,349	84,376	192,135		30,282	468,577
 117,390	49,818	88,228	205,809		32,358	493,602
	97,329 78,746 81,737 87,680 100,980 106,790 106,792	News Woodpulp 97,329 8,655 78,746 17,233 81,737 17,470 87,680 20,240 100,980 26,180 106,700 32,670 106,792 42,147 113,437 48,349	News Woodpulp Woodfree 97,329 8,655 47,248 78,746 17,233 36,074 81,737 17,470 55,207 87,680 20,240 66,550 100,980 26,180 79,090 106,700 32,670 67,200 106,792 42,147 81,431 113,437 48,349 84,376	With News         With Woodpulp Woodfree         Kraft Paper           . 97,329         8,655         47,248         84,655           . 78,746         17,233         36,074         107,396           . 81,737         17,470         55,207         104,529           . 87,680         20,240         66,550         116,500           . 100,980         26,180         79,090         168,310           . 106,700         32,670         67,200         128,800           . 106,792         42,147         81,431         166,257           . 113,437         48,349         84,376         192,135	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	With News         Woodpulp Woodfree         Kraft Paper         Board         Other           . 97,329         8,655         47,248         84,655         18,103         23,645           . 78,746         17,233         36,074         107,396         24,758         23,875           . 81,737         17,470         55,207         104,529         20,589         30,630           . 87,680         20,240         66,550         116,500         30,250         29,480           . 100,980         26,180         79,990         168,310         °         29,590           . 106,700         32,670         67,200         128,800         °         27,680           . 106,792         42,147         81,431         166,257         °         27,935           . 113,437         48,349         84,376         192,135         °         30,282

#### GREECE

	1	3	n		1	h	10	21	l.	81	a	n	d	8		of short	tons)
														T.			Woodpuly Imported
1937.																34	26
1946.																13	13
1949.			۰													32	25
1950.				0												38	29
1951.											۰					43	28
1952.																	16
1953.																24	27
1954.																	33
1955.			۰							0	0			0	0	33	37

with financial aid from the U.S.A. but whether it has met its design capacity of 7,500 tons a year of bleached pulp could not be determined.

Another bleached straw pulp mill project for Salonika was in the talking stage.

It has been estimated that woodpulp imports will rise to over 40,000 tons this year, in order to serve a new paper machine in a Patras paper mill. Greece has six paper mills and 10 small boards mills, and several have been improving and increasing output.

Greek consumption of paper now exceeds 50,000 tons a year of which some 15,000 tons is needed for newsprint.

### **AUSTRIA**

### Nation's No. 3 Industry Sets All New Records

Population: 7,100,000; Per capita paper consumption: 75 lbs.

Paper	mills:	83.	Pulp	mills:	72
- 4		-			

Sweden, U.S.

tuper mus, oo, tuth n	11110. 12.	
Production (short tons)	1954	1955
Paper	486,906	529,710
Chemical woodpulp	408,729	444,399
Mechancial woodpulp	152,243	163,279
Paper imports	3,874	5,500
Paper exports	260,569	284,328
Woodpulp imports	12,941	16,260
Woodpulp exports	151,343	172,572
Principal pulp and pape	er exports	to: West
Germany, Italy, Great I	Britain, In	dia.
Principal pulp imports	from:	Germany

### By DR. KARL ADAMIK

#### Head of Institute of Pulp-Paper Technology University of Graz

Austria has built up one of the major pulp and paper industries of Western Europe and the industry has been a major beneficiary of United States aid, from the days of the Mar-

PROF. KARL ADAMIK, head of 3-year-old Institute of Pulp and Paper Technology, Graz University, reports new industry alltime records in 1955.

shall Plan to the present U.S.A. Foreign Operations Office. New mills were built, others rehabilitated and expanded.

In 1955 paper and pulp production and exports of both set new records.

In Austria, pulp and paper is now the No. 3 industry. Paper production reached 529,710 short tons, an increase of more than 134,000 tons in just two years. Chemical woodpulp production rose to 444,399 short tons and this is 120,000 tons more than it was in 1953. Groundwood also increased. The comparisons with last year are shown in the above table.

The Austrian industry consists of 84 firms with 105 mills and plants. These include 10 paper mills with groundwood mill; 8 paper mills without groundwood mill; 6 paper mills with sulfite pulp mills and groundwood mill (of these, one with additional sulfate pulp mill); 4 paper mills with sulfite pulp mill only; 2 paper mills with sulfate pulp mills (one also with groundwood); 5 sulfite pulp mills. Of the paper mills, 3 are producing color papers; 2 are machineboard mills with groundwood mill; 1 without groundwood mill. There are also 30 board mills producing handmade boards: 17 board mills (handmade board) with groundwood, and 17 groundwood mills only.

The Frantschach mill is a typical example of an Austrian mill which was a substantial beneficiary of U.S. aid.

The Adolf Funder jun fibreboard mill was badly wrecked in a fire but was quickly reconstructed and is in full operation again.

With an all-time record output of 607,600 short tons of woodpulp, Austria was in a strong position to carry on the important role it has taken over as one of the major exporters of market woodpulp. Its exports of 284,-328 short tons, in 1955, put it in No. 6 place as a pulp exporter.

NEW TREE CENSUS . . . In 1955 a new Austrian Forest Census was taken. On the basis of the new data there may be some new restriction on pulpwood cutting, and a quota of 8½ million cu. meters is suggested. Annual cuttings in recent years have been from 10 to 12 million cu. meters,

### AUSTRIA—PAPER AND BOARD PRODUCTION (in short tons)

Year	Newsprint	Book Paper	Wrapping Paper	Fine & Special	Paperboard
1937	69,718	117,326	57,475	10,791	70,510
1950	78,316	101,661	66,162	16,602	64,939
1951	83,964	110,081	73,096	20,341	74,568
1952	82,037	109,628	62,946	22,266	70,084
1953	92,249	133,901	71,866	28,323	68,804
1954	116,166	151,754	100,905	32,883	85,196
1955	136,833	159,988	102,179	37,085	93,624

### AUSTRIA—PULP PRODUCTION (in short tons)

Year	Sulfite	Dissolving	Sulfate	Mechanical
1937	255,453	13.893	24.948	106,436
1950	209,129	42.096	23,816	102,672
1951	215,557	58,711	25,694	116,276
1952	209,509	48.947	25,066	108,043
1953	237.213	49.828	37,340	126,378
1954	267,366	59.534	81.829	152,243
1955	283.473	65.870	95.055	163 279

### AUSTRIA—PAPER AND BOARD EXPORT

Year	Newsprint	Book Paper	Wrapping Paper	Fine Paper	Paperboard
1937	61,972	31.867	29.148	5.955	35,970
1950	48,522	51,715	15,301	8,599	13,889
1951	51,533	54,704	18,484	9,530	18,777
1952	54,124	50,093	11,023	13,624	13,845
1953	60,981	81,690	20,304	19,546	22,752
1954	83,088	90,581	36,594	20,931	29,373
1955	101,879	97,761	32,916	23,671	28,523

### AUSTRIA—PULP EXPORT (in short tons)

Year	Sulfite	Dissolving	Sulfate	Mechanical
1937	136,423	12,737	10,340	20,669
1950	87,052	11,905	8,963	6,391
1951	70,253	18,016	9.457	6.106
1952	71.329	11.450	7.920	5.255
1953	84,161	19,451	13,278	9,483
1954	87,657	24.490	34.259	4.937
1955	92,667	25,119	46,576	8,210

so this may mean less exports of pulp in future years. Expansion of the industry may slow down. The Socialist party has been making an issue of alleged forest depletion.

A small chemi-groundwood mill reportedly along the lines of the process developed at Syracuse University in U.S.A. and introduced at Great Northern Paper Co. was a new innovation at an Austrian mill. How much it resembles the process in U.S.A. was not ascertained, but it is only a small mill of 5 metric tons daily capacity.

Another new process in Austria was pre-heat treatment of logs before wet-debarking at Papierfabrik Carl Schweizer. A pilot effluent "purification" plant is reported at one mill, serving as pilot for several operations.

Austria imported considerable dissolving pulp from West Germany for two Austrian rayon plants.

Although there was much publicity in the papers over a year ago on Austria's new found, and uneasy, independence from Russia, it might surprise many WORLD REVIEW readers to know one mill in Donau, Upper Austria, the Crollwitz-Obermuhl paper mill, actually was not turned back to Austrian management until late 1955, because it was a source of paper for Iron Curtain countries as well as Communist newspapers in Austria.

### ITALY 50-Ton Beloit Tissue Machine Will Start Up in September

Population: 49,000,000; Per capita paper consumption: 35 lbs. Paper mills: 503. Woodpulp mills: 44. Straw or vegetable pulp mills: 17

Production (short tons)	1954	1955
Paper	812,184	896,796
Chemical woodpulp	79,200	70,180
Mechanical woodpulp	179,062	214,230
Straw & other pulp	33,770	60,060
Paper imports	56,577	58,118
Paper exports	17,994	26,856
Woodpulp imports	254,969	282,249
Principal paper grades	made:	
Newsprint	140,580	157,918
Kraft	66,000	86,240
Book and writing	233,933	245,413
Paperboard	107,517	116,279
Principal paper impo	rts from:	Austria
Sweden, Finland		

Principal woodpulp imports from: Sweden, Austria, Finland
Principal paper exports to: Britain, India.

Principal paper exports to: Britain, India, Egypt, Middle East

Milan

Southern Europe will receive its first South European-made facial tissues from the big Vita Mayer & Co. kraft mill near Milan by the end of this summer.



ONE OF AUSTRIA'S BIGGEST MILLS. Zellstoff und Papierfabrik Frantschach produces kraft and kraft specialty papers. Mill, which has five paper machines, a wet machine and eight digesters, is typical of continuing growth of paper industry in once Russian-dominated country.



REBUILT AFTER FIRE. Swept by a disastrous fire the past year, the Fiberboard Mill "Adolf Funder jun" has been completely rebuilt and is now in full operation.



NEW BARKING EQUIPMENT. At Papierfabrik Carl Schweizer A.-G., new wetde-barking system has been installed. Here equipment pretreats logs by heat before debarking process begins. Mill produces printing papers, with groundwood content, and newsprint on two big paper machines.

The mill, dressed up with an "American look," will have its 204-in., 2,500-fpm Beloit machine producing tissue by mid-August or early September. It will supply Italy and Southern Europe and mark an important step forward in Italy's attempt to become one of the major paper producers on the continent.

The machine has a 204-in. Four-drinier, a 12-ft. Yankee dryer and is provided with a Ross Engineering hood and air system. Ahead of the machine are five new Sutherland refiners. Initial production of the

machine is expected to be about 50 tons a day. With its all-American machine, Vita Mayer will strictly have that "Yankee" look, according to Dr. Pietro Ghisoni, technical director of Vita Mayer and PULP & PAPER'S Italian correspondent.

Dr. Chisoni sent reports from the Italian Association of Paper and Paperboard Makers, Milan, that Italy is making giant strides in its continuing efforts to meet ever-increasing per capita demands of its people. Production this year was 84,000 short tons greater than last





PIETRO GHISONI, nical Director of Vita Mayer & Co., starting up new Beloit Machine for facial tissue Sept. 1956.

year; there were 17 more plants producing paper and cartons. There are now 44 woodpulp mills, eight of which are making chemical woodpulp. And there are 17 other mills in Italy making cellulose from straw and other fibers.

NORTHERN ITALY STILL MAJOR PAPER CENTER . . . Italy's northern section still is the heart of the Italian paper industry, now producing 74.35% of all of the nation's paper (666,700 short tons.) In Central Italy, 20.62% is produced (184,800 short tons) and Southern Italy is making 5.03% (45,000 short tons.)

According to the Association data, there seemed to be a general trend

### ITALY-PAPER PRODUCED

	New	sprint	Krajt	Paper	Other & Pape	
	Pro- duced	Con- sumed	Pro- duced	Con- sumed	Pro- duced	Con- sumed
1952		98,233 117,758 129,897 150,920	44,100 60,406 58,973 59,400	45,203 63,492 63,272 67,100	467,329 546,700	410,792 408,574 458,731 565,440

### **ITALY**—Paper Imports-Exports (in short tons)

Year	Import	Export
1948	28,519	17,042
1949	28,480	15,035
1950	31,911	15,316
1951	19,935	57,692
1952	27,403	24,156
1953	58,784	9,243
1954	56,557	17,994
1955	58 118	26.856

#### ITALY-WOODPULP PRODUCTION

	C	hemical Pu	lp.	Total
	Dissolving	& Board	Mechanical	Woodpuly
1937	0	31,010	161,766	192,776
1947	17,613	40,958	106,288	164,859
1950	48,141	60,296	140,873	249,310
1951	58,986	93,365	155,278	307,629
1952	57,332	85,979	156,726	300,037
1953	36,200	106,920	162.845	309,585
1954	64,033	112,976	163,004	340,006
2301	70.064	120 240	0.07 442	200,000

toward increased production of mechanical or semi-chemical woodpulp and away from conventional chemical pulp. In 1954, 79,200 short tons of chemical woodpulp was manufactured in Italian mills. In 1955, it dropped to 70,000 tons. In the semi-chem field, however, Italian pulpmakers produced 213,500 short tons this year as compared to 178,300 short tons in 1954. Pulp from straw and other fibers almost doubled from 33,700 short tons in 1954 to 59,500 short tons in 1955.

PAPER USE ON THE INCREASE

. . . Despite these big steps forward, per capita use of paper in Italy is still racing ahead of production. Last year, Italy imported 56,100 short tons, this year it was 57,000. Imports of woodpulp, too, increased, and a major share of it continued to be chemical pulp. In 1955, 281,700 short tons of pulp were imported (275,200 was chemical) while 254,200 short tons were imported last year.

High pulpwood costs are blamed for Italy's pulp industry not hitting its estimated total chemical capacity of 227,000 tons. Forestry strides are being made, however, in the broad, rich Po Valley forests, where a remarkably high yield of poplar, now one of the favored pulpwood species, has been achieved. A yield of from five to seven cords per acre of hybrid poplar has been produced in Italy. This is particularly interesting when you consider that two or three cords per acre is a good figure in the Lake States region of the U.S., where hardwoods similar to Italian poplar are grown. About 95% of mechanical pulp is produced from locally grown poplar.

According to one source, however, Italy's mills still depend almost entirely on imported pulp for their chemical pulp production. The largest Italian importer of woodpulp is still said to be Naztionale Cartiere, a cooperative buying group which includes many different mills. This organization takes more than 50% of all woodpulp imports.

HOW PRODUCTION SIZES UP . . This year, Italy produced 157,918 short tons of newsprint and consumed 184,000 tons. Consumption of newsprint was some 12,000 tons higher than in 1954 and production was almost 18,000 tons more. In kraft papers, too, consumption was higher than production: 86,240 tons produced, 92,718 tons consumed. Other paper and paperboard consumption was below production, accounting for the 26,856 tons of paper and board exported during 1955. 652,637 tons were made, only 643,048 tons were

### **IRELAND** Irish Industry Still Expanding; Production Higher Than 1954

consumed by Italians.

Population: 2,933,000. Per capita paper and board consumption: 59.8 lbs. Paper and board mills, 7. Woodpulp mills, 2. Straw or vegetable fiber mills, 2. Production (in short tons): 1954 Paper and paperboard 42,620 58,350 Imports paper and board 120,000 150,000 Exports paper and board 100,000 80,000 Woodpulp imports 50,000 55,800 Principal paper grades made: Wallboard, Principal paper grates mater variously, paper bag, wrapping.

Principal paper imports from: Canada, Britain, Finland, Sweden.

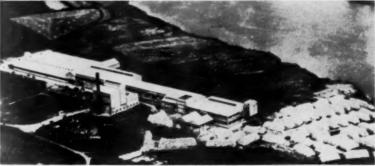
Principal paper exports to: Britain.

Principal pulp imports from: Sweden, Canada.

Dublin

Ireland, which has been building its industry up from a near chaotic state a few short years ago, has made advances again this year-but its papermaking industry is still a paradox. It exports most of the paper it makes and imports nearly twice as much for its own use!

This year Ireland exported 80,000 tons of paper and board and imported 150,000 tons to fill 59.8 lbs. per capita demand of its nearly 3 million people. One reason for this strange situation is that most of the industrial production is owned by



IRELAND'S NEWEST PAPER MILL, located at Granagh, Waterford, is owned by National Board & Paper Mills, Ltd. The new mill was built two years ago, David Coyle is chairman of the Board of National and Frank Williamson is managing director of the mill. Other board members: W. C. Kenny, T. J. Monaghan and D. Morrissey

#### IRELAND-PAPER

(In Short Tons)

	$P_{7}$	oduced	Exports	Import:
1949		10,029	1,239	52,993
1950		22,046	5,242	66,834
1951		24,000	11,364	60,000
1953		39,980	22,400	60,960
1954		42,620	100,000	120,000
1955		58,350	80,000	150,000

British capital and is made for export purposes. The country has seven paper mills, two of them on paperboard grades and four with pulp mills. One of the largest of these is a Bowaters enterprise.

A move is afoot now, however, by the Eire Industrial Development Authority to build a newsprint mill in Ireland, producing specifically for Irish needs. An Irish paper making concern has announced its intention to cater specially to the newsprint needs of Ireland and authorities say there are suitable supplies of native wood for the manufacture of pulp.

Swift Brook Paper Mills, Ltd., acquired its fourth paper machine during the year. It was installed in the Dublin mill and a new building was built to accommodate it. The mill was in full production during most of the year.

A 200-ton mill also was reportedly being completed in Kenmare, county Kerry, designed to make pulp, kraft paper and tissue. Details were not available, however. Latest new mill in operation is at Waterford. It is owned by the National Board & Paper Co. and has been in operation now about two years.

Most of the Irish production is

### BELGIUM-PULP

(in thousands of short tons)

	Production		Consumptio	
	Chem.	Mech.	Chem.	Mech
1939	28	36	155	65
1949	20	42	116	75
1952	34	55	100	68
1953	36	58	123	75
1954	45	58	143	71
1955	45	62	202	75

### BELGIUM-PAPER CONSUMED

(short tons)

		Total Paper & Paperboard
1936	89,300	296,000
	77.100	346,800
1951	87,700	407,400
1953	90,820	405,994
1954	101,764	462,844
1955	111,142	490,387

• Correspondents in over 50 nations or territories around the world sent these reports to the unique 1956 WORLD REVIEW NUMBER of PULP & PAPER.

chipboard from waste, bags, wrapping paper, manila and corrugated. One of Ireland's main problems is its limited forest resources. Ireland has about 478 square miles of forests, only 1.8% of its total area. Last year it exported 133 tons of pulp and waste paper compared with 180 tons in 1954.

The year 1955 also closed the book on one of Ireland's most wellknown industry figures, A. C. Carter, a director of Spicers, Ltd. Mr. Carter, who was 64, was an expert in papermarketing and had been with Spicers, Ltd., for nearly half a century.

### BELGIUM

### Mills Agree to Divide Specialties To Lower Cost, Speed Up Output

Population: 8,870,000; Per capita paper consumption: 110 lbs.
Paper mills: 28 Woodpulp mills: 5
Straw or vegetable fiber mills: 1

Production (sh. tons)	1954	1955
Paper	334,932	351,330
Chemical woodpulp	45,264	45,258
Mechanical woodpulp	58,317	62,405
Straw & other pulp	7,079	7,758
Paper imports	185,430	209,861
Paper exports	65,252	74,137
Woodpulp imports (mech.)	129,985	203,797
Woodpulp exports		

(mech.) 19 690 22 250 Principal paper grades made: Newsprint, Kraft, Sulfite, Book and Writing, Paper-

Principal paper imports from: Nether-lands, Sweden, Finland.

Principal woodpulp imports from: Sweden, Finland, Norway.

Principal paper exports to: Netherlands, West Germany, United Kingdom. Principal woodpulp exports to: France, West Germany, United Kingdom.

### Administrator, Gross & Irgens

The entire year 1955 was a period of great activity and prosperity for the entire Belgian paper industry. Practically all of Belgium's 28 paper and board mills have been running

### By WILLIAM F. BOKS

at the very limit of their capacity,

WILLIAM F. BOKS, who again sends WORLD REVIEW readers the news from his little country, Belgium. He is Administrator-Director of Gross & Irgens, Woodpulp Sales Agents, of Brussels, Belg. A few years ago he made a coast-to-coast tour of America, contacting many prominent pulp producers.

often with delivery times of many months ahead.

The total production of paper and board in 1955 reached about 351,330 short tons, thus coming very near to the record production of the peak year 1951, and approximately 5% more than in 1954, and about 46% more than before the war.

Imports of foreign papers, mainly from Holland, Sweden, Finland and Norway, also sharply increased to about 210,000 tons, representing nearly 60% of the home production, and the total consumption reached some 490,000 tons, or about 110 lb. per capita.

Dividends paid out by most Belgian paper mills for the year 1955 also showed substantial progress.

The entire industry continued its efforts towards increased production and lower costs by intensive modernizations and by agreements whereby each mill specializes in a few grades, thus allowing longer runs.

Towards the end of 1955 a new machine making kraft paper started production and in the autumn of 1956 a new giant newsprint machine will enter into operation, by which Belgium will be made self-supporting in this grade.

### OTHER BELGIANS COMMENT. . .

"While the output of the Belgian paper industry shows constant progression upward, Belgian exports of paper and board increased by about 10,000 metric tons, 15% more than in 1954," writes J. Polsky and H. Vincent of Papeteries de Belgique. "This result was obtained by a better ad-

(in thousands of short tons)

	News	Book and Fine	Wrapping and Coarse	Total Paper	Paper Board	Total Paper and Paperboard
1939	52	85	85	235	26	261
1948	48	98	87	245	26	271
1950	68	105	113	304	23	327
1952	58	75	90	246	36	282
1953	61	79	117	270	37	308
1954	57	84	134	291	45	335
1955	62	88	193	306	46	352

vance study of the markets in the Netherlands and in Western Germany.

"The Netherlands remain the principal commercial partner of Belgium," these Brussels industry executives added. "Our neighbors to the north are our most important customers and suppliers.

"Consumption of paper and board increased from 442,000 short tons to 497,000 short tons. Consequently, per capita consumption rose, reflecting an improvement of standard of life in Belgium in which paper played a most important role."

### SWITZERLAND

### Business Is Brisk as Production Rises; Up to 380,000 Tons

Population: 4,950,000; Per capita paper consumption: 146 lbs.

Paper mills: 36; Woodpulp mills: 3.

Production (short tons)	1954	1955
Paper	341,000	380,000
Chemical woodpulp	94,000	96,000
Mechanical woodpulp	99,000	99,000
Paper imports	15,070	16,519
Paper exports	10,261	9.924
Woodpulp imports	45,125	62,136
Woodpulp exports	3,999	6,027

Principal paper imports from: Germany, Austria, France.

Principal woodpulp imports from: Sweden, Austria, Canada, U.S.A.

Principal paper exports to: Italy, France, Netherlands.

Principal woodpulp exports to: Italy, France.

Balsthal

Swiss paper production continues to climb every year, due to new technical advances and to slow but steady industrial development in Switzerland. In 1955, according to a report by Siegfried H. Aeschbacher, manager of Balsthal Paper Mills, paper production was up to 380,000 tons, an increase of 40,000 from last year's 341,000. Woodpulp exports jumped too, from 45,125 tons to 62,-136 tons.

Big production was in paperboard (99,000 tons), book and writing papers (99,000 tons), newsprint (72,000 tons) and kraft (24,000 tons.) Demand



SWITZERLAND, LONG NOTED FOR ITS INDEPENDENCE and its strict adherence to neutrality, saw one new mill this year, boosted paper production 40,000 tons over 1954.

within Switzerland increased in 1955 and a new semi-chemical pulp mill, built with Swedish technical advice at Delemont, near Basle, was partly responsible for the boost in production. The new mill uses coniferous and deciduous trees from the Jura mountains.

One Swiss sulfite mill at Attisholz makes pulp for export and domestic market.

### Report On A Leading Papermill BY SEIGFRIED H. AESCHBACHER Manager of Balsthal Paper Mills

(Ed. Note: This is another in the series of articles by Mr. Aeschbacher on Switzerland's leading paper mills written each year for PULP & PAPER's WORLD REVIEW NUMBER. Last year, he told the story of the Balsthal Paper Mills.)

In 1825, at a time when a lively traffic of stage-coaches and the changing of freight and horses took place at Oftringen—crossroads of the main roads from Geneva to eastern Switzerland and from Basle to south Switzerland—two courageous men, Samuel Kunz and Samuel Braun, built a paper mill on the Arburger-Mühletych (a canal which dates back to the Middle Ages).

At this time the first steam railway

was also built in England, the first steamboats crossed the Swiss lakes and, generally speaking, the first signs of the coming technical and industrial age could be distinguished.

Politically, this was a revolutionary period. Many heated discussions took place and much was written, printing-offices having a very busy time. For papermakers this was, obviously, a very favorable period, since the existing 80 vats with a yearly output of 1.5 to 2 million kilos (2,200 tons) of paper were not in a position to satisfy demand.

At Oftringen writing and printing paper was molded from rags, after the old methods, and the sheets were dried on the floor of an attic still existing at the mill.

The paper mill in 1842 became the sole property of Samuel Kunz and he in turn sold the mill in 1844 to a J. R. Huessy. It was under the latter's management that the first paper machine was installed with a width of 120 centimeters and daily output of 300 kilos. A second machine of 150 centimeters followed in 1864.

This larger machine could not satisfy demand and the management was compelled to drop manufacture of writing paper and to take up kraft paper instead.

Once more, in 1882, a change in the management took place, when the son-in-law of Mr. Huessy, Arnold Walty-Huessy, took over. With installation in 1905 of a third, very modern machine, width of 170 centimeters, came a decisive turn for the better. In 1913 the firm was converted into a limited company. The son of the previous owner, Max Walty-Siegrist, entered as a partner and took over management. In 1936 Otto Widmer-Walty, son-in-law of the above mentioned also became a partner and manager.

### **SWISS PRODUCTION**

(In Thousands of Short Tons)

	Sulfite Pulp	Ground wood	News- Print	Other Print- ing Paper	Wrap- ping Paper	Other	All Paper	Paper Board	Paper and Board Total
1935	 45	43	34	29	22	27	112	40	152
1945	 62	52	40	36	35	34	145	44	189
1950	 80	77	52	50	45	40	187	55	242
1951	 97	87	55	55	53	57	220	66	286
1952	 85	88	55	56	53	61	225	71	296
1953	 77	88	60	55	44	60	219	77	296
1954	 94	99	66	64	53	70	253	88	341
1955	 96	105	72	70	62	77	281	99	380





SIEGFRIED H. AESCHBACHER (left), Manager, Balshal Paper Mills, as he has done in past reports to this WORLD RE-VIEW NUMBER, reviews the history of another famous Swiss paper company. This year his subject is Walty & Co.

OTTO WINDMER-WALTY (right), who will be next owner of Walty & Co., after retirement of Max Walty-Siegrist. Mr. Windmer-Walty has been a Partner and Manager since 1936.

Up to the firm's 125th anniversary in 1950, it had been possible to raise yearly output to 50 thousand tons. In this year it was decided to install a second 220 centimeter machine, for paper and board manufacture. The machine started production in 1952, when Oftringen entered the Swiss market also as a board manufacturer. A complete success soon showed itself and a third machine, width of 190 centimeters, was ordered and has produced paper and liner board since March 1955.

IN 5 YEARS, OUTPUT INCREASES 6 TIMES . . . With these three machines output increased to 20,000 tons a year. This again proved insufficient and production had to be raised once more. A fourth machine of 250 centimeters is now being installed and was to start up after mid-1956. Within five years production experienced a sixfold raise, and this development is probably unique in the history of the Swiss industry.

In spite of such large expansion and financial investment, the private character of the firm always was preserved. Since its founding in 1825,

Oftringen has always remained in the hands of one family.

After the retirement from active work of Max Walty-Siegrist, its sole owner will be Otto Widmer-Walty. At the same time the designation of the firm will be changed to Paper- and Board-Mill Oftringen, Widmer-Walty and Co.

Oftringen manufactures sulfate and sulfite wrappings, grey boards, news boards, etc., for converting and distribution.

### PORTUGAL

Mills Start Exporting Kraft; Sandy Hill Bleaching at Capacity

Population: 8,621,000. Per capita paper consumption: 14.5 lbs.
Paper mills: 18. Woodpulp mills: 2 Production (short tons) 1954 1955 55,300 52,000 Paper Chemical woodpulp 48 700 Paper imports Paper exports 18,100 3,300 16,500 9,500

Woodpulp imports Woodpulp exports 18,000 16,300 25,200 23,800 Principal paper grades made: Newsprint, kraft, book and writing, paperboard,

cigaret Principal paper imports from: Sweden, Austria

Principal woodpulp imports from: Sweden, Finland den, Finland

Principal woodpulp exports to: England,

France, Belgium

Principal paper exports to: England, Germany, Norway, Greece, India

Two Portuguese concerns, Cia. do Papel do Prado and Fabrica de Papel da Abeheira, recently started to export kraft paper for packaging. Europe's boom in packaging and paper consumption is attracting interest of mills in this country.

Bleached kraft pulp and paper reached the stage of regular production last year at the three-year-old Cia. Portugesa de Celulose, at Cacia, 170 miles from Lisbon.

Eduardo Rodrigues de Carvalho,

Portuguese industrialist, who heads the company, finally saw his dreams realized, as additional capitalization and equipment made this possible. Until last year, only a small portion of the pulp was bleached. Some 33,-000 tons were made in 1954, and only about 5,000 tons were made into paper, but both figures were considerably increased for 1955.

This mill was one of the interesting recent developments in Europe. Shr. de Carvalho traveled to the United States and other countries in Europe to find suitable equipment. He is using Swenson evaporators made in Whiting, Ill., U.S.A., and a bleach plant equipped by Sandy Hill Iron & Brass Works, Hudson Falls, N.Y., U.S.A., using the Kamyr process.

Caima Pulp Co., at Quinto do Caimo, Quinta do Caima, Albergariaa-Nova, in the past couple years, doubled its production of bleached eucalyptus sulfite pulp to 13,500 tons. This is a unique market pulp mill, which for many years has been selling its high quality easy-bleached sulfite to mills all over the world.

A considerable upswing has taken place in Portugal with many of its mills making improvements and adding to capacity.

### YUGOSLAVIA

Tito-Kremlin Parley Has No Effect on Pulp Exports West

Population: 17,676,000; Per capita paper consumption: 13 lbs.
Paper and paperboard mills: 8; Wood-

pulp mills: 8.		
Production (short tons)	1954	1955
Paper Chemical Pulp	73,195 47,901	79,188 60,443
Mechanical woodpulp Paper & paperboard	21,597	29,906
imports Paper & Paperboard	24,137	28,857
exports	2,919	2,250
Woodpulp imports Chemical	4,838	2,124
woodpuln exports	14.683	14.622

Principal paper grades made: Cigaret, colored covers and packing paper Principal paper imported from: Austria, Finland, France
Principal woodpulp imports from: Aus-

Principal pulp exports to: Argentina, England, Italy.

Principal paper exports: Turkey, United Kingdom, U.S.S.R.

Belgrade

Despite the fact that Tito seems to be beaming his favorite song, "Friendship," straight to the Kremlin these days, Yugoslavia continues to beam its woodpulp and paper exports straight in the opposite direction. During 1955, paper exports went to



INCREASED OUTPUT 6 TIMES IN 5 YEARS! One of oldest Swiss paper and board mills is this operation of Walty & Co. which traces its beginning back to 1825. Mill has been owned by the same family since it was founded. It is located at Oftringen.

South America, Italy and Turkey, woodpulp exports went to England, South America and Italy.

With a third of its area covered by easily accessible and abundant forest and wood products the number three industry in the country, Yugoslavia is becoming more important each year as a tasty source of paper and pulp exports to countries like Italy and the South American nations. This year, Great Britain, Italy and South America were chief among countries receiving woodpulp from Yugoslavia's mills. It appears, therefore, that Yugoslavia's apparent independence as far as exports go is of major importance to these countries. If Yugoslavia ever changes its export philosophy and begins sending its pulp and paper products in the direction of Moscow, it

tomers in the free world.

More significant is the fact that Yugoslavia continues each year to develop its industry. This year chemical pulp production jumped to 60,443 tons, quite an increase over 1954's 47,901 tons and nearly a 35% jump over 1953, when 39,658 tons were made. Groundwood production did not jump as sharply but was still up over 1954. This year it reached 29,906 tons. Production last year: 21,597; in 1953, 20,892.

could be a major blow to some cus-

Once again, PULP & PAPER is indebted to both Milos Macura, Deputy Director of the Federal Statistical Office in Belgrade, and C. Dzomba, chief of the Federal Chamber of Foreign Trade at Belgrade, for supplying hard-to-get, important facts and figures on Yugoslavian paper activity in 1955.

### MORE PULP FOR EXPORT .

In paper and paperboard, production was also up. For instance, from 1953 to 1954, paper production increased only a bare 102 tons. This year, Yugoslavia increased its paper tonnage by 6,000 tons, up to 79,188. Paper and paperboard imports, however, continued to rise. Last year they were 24,137 tons. This year: 28,857 tons. The opposite is true in the pulp field. Last year, Yugoslavia imported 4,838 tons, this year, only 2,124.

In paper production, book and writing papers and paperboard lead the rest of the field. A total of 28,688 tons of fine papers and 20,817 tons of board were made last year. In comparison, only 5,102 tons of newsprint and 4,416 tons of kraft were manufactured.

NEW MILLS . . . A new sulfite mill at Prijedor, Bosnia-Herzegovina, is now in production, making 37,730 tons. Another mill, Fabrika Celluloze

### YUGOSLAVIA-PULP-PAPER

(In Thousands of Short Tons)

	Sulfite Pulp	roductio Mech. Pulp	n—————————————————————————————————————	Export: Sulfite Pulp
1951	34	23	66	21
1952	37	17	61	5
1953	40	21	72	11
1954	48	. 22	74	14
1955	58	30	91	14

### YUGOSLAVIA—GRADES PRODUCTION

in short tons)

	News- print	Kraft	Book and Writing	Paper board	Fine Paper
1955	5,612	4,858	31,557	10,956	1,914

y Prijedor, was completed in 1951 on a nearby site.

Other major expansion was completed in the past year at Maglaj, where a new cellulose plant producing kraft pulp and paper is now in operation. With its completion, Yugoslavia stopped importing cement bags. The new mill is rated at about 22,000 tons of kraft paper a year, including about 18,000 cement bags. This is about 3,500 tons more than is needed, so it can be expected that they will begin exporting in this field shortly.

Also under construction in a newsprint mill at Slovenia at Krsko Viden which is expected to fill the country's newsprint needs and cut back on imports in that grade.

### SOVIET RUSSIA

### Direct Reports from Russia Tell of Gains and Problems

Population: 200,200,000. Per capita paper consumption: 26 lbs.

(in short tons)
2,563,000 (1955)
2,200,000 (1954)
1,710,000 (1953)
1,200,000 (1955)
1,157,000 (1952)
1.100,000 (1955)
1,047,000 (1952)
110,000 (1951)
8,425 (1954)
59,718 (1954)
from: Satellite na- Satellites.

#### A PULP & PAPER SPECIAL:

### By G. ZAVELSKY

Director, Kama Pulp & Paper Combine

#### and V. YESAFOV

Secretary, Party Committee at Kama Combine

> Krasnokamsk, Molotov Province

Directives of the 20th Party Congress on the Sixth Five-Year Plan call for a 60% increase in output of print-

ing paper and 51% in the output of newsprint. Such growth requires better organization of production and the fullest utilization of equipment:

These problems are frequently not given proper attention. At our combine, for example, it is possible to put two more powerful machines into operation. Our recommendation was submitted to the Ministry of Paper and Wood-Processing Industry back in Sept. 1955. What happened? Only 1% of necessary funds were allocated in 1956 for installation of these machines(!)

At this rate it is impossible to even talk about putting new capacity into operation under the Sixth Five-Year Plan. Meanwhile, the machines have been in the warehouse for more than two years and the equipment is becoming obsolete before it has produced a single ton of paper.

Since the war, some in the paper industry have done much to improve the use of equipment. On the initiative of some screen operators at our combine, a competition was launched to increase machine speeds and reduce fiber losses in production. As a result, planned speeds of all paper machines have now been achieved, while thousands of tons more paper have been produced from savings on fiber. These results were achieved by perfecting individual units and parts of machines.

We now raise the question of proceeding from improvement of individual machine units and parts to basic modefinization and to the introduction of automatic equipment. It is possible to increase machine speeds from around 1,000 fpm to 1,100 fpm and if machine units are modernized, speeds can be increased to around 1,300 fpm. By modernizing the combine's equipment, it is possible to provide the country with an additional 27,500 short tons to 33,000 tons of paper per year.

To carry out the much-needed modernization of paper machines, it is necessary to manufacture large units at most of the ministry's enterprises: Hydrodynamic pressure boxes, suction rolls, improved electric drives, etc.

It is, however, impossible to make them under the present conditions at our enterprise, while the ministry does not have its own machine building plants. This is why it would be useful to have the draft directives on the Sixth Five-Year Plan note the need to establish up-to-date machine building facilities.

### WOOD LOSS, WATER PROBLEMS

. . . An important task of the paper industry is to utilize costly wood to the fullest and to reduce production

### U.S.S.R. Paper and Board Production

Year	In short tons
1937	831,000
1940	812,000
1946	556,000
1947	696,000
1948	836,000
1949	995,000
1950	1,194,000
1952	1,540,000
1953	1,710,000
1954	2,200,000
1955	2,563,000

Sources: United Nations; U.S.S.R. Information Bulletin; and others.

losses. Because of inefficient equipment our wood losses are still intolerably high. At the Kama Combine alone, for example, they reach 75,000 cu. meters a year.

It is also time practical measures were taken to purify waste water, with which thousands of tons of fiber and fillers are carried away. Expansion of sulfide and alcohol plants with the indispensable construction of yeast shops is also a major reserve for the fullest utilization of wood. While the production of alcohol from alkalis is expanding in our country, the construction of shops for production of fodder veast has been intolerably delayed. A part of the waste products from pulp and alcohol production is still dumped into the Kama.

In our opinion, the practice of production planning which has been established in the U.S.S.R. Ministry of Paper and Wood-Processing Industry needs considerable improve-ment. To balance the situation at its enterprises, the ministry still resorts quite frequently to revising its plans. For leading enterprises, plan quotas are made higher after they have been overfulfilled, while for lagging enterprises they are decreased.

QUOTA REVISIONS . . . The 1955 production plan for our combine was changed for the last time on Dec. 30, 1955 and we received the new, revised financial plan in Jan. 1956. Both plans were revised so that the combine was converted from an enterprise which met its quotas from accumulations and had "above-plan" profits of several million rubles into one which was lagging. Yet the production of products over and above the plan was cut by 7,000,000 rubles.

Such "plans" merely dis-orient enterprises and impede the organization of competition. The ministry should help lagging enterprises in a businesslike way and not make them parasites on advanced ones.

Workers and employes of the Kama Pulp and Paper Combine actively took part in competition for fulfillment of the Fifth Five-Year Plan ahead of schedule. More than 33,000 short tons of paper and approximately 55,000 tons of pulp were produced over and above the plan in the past five years through better use of equipment and introduction of advanced experience.

In the first year of the new fiveyear plan. Kama workers are aiming for more than the 2.200 tons of paper and 2,220 tons of pulp plan, and will struggle with all their might and main to fulfill goals of the Sixth Five-Year Plan.

### Too Many Idle Machines In Mills, Says Russian Operator

Moscow

Pravda newspaper editorial states that much equipment in the paper industry in Russia is idle and qualitative indices are low. Comrade Shekhotkin, senior screen operator at the Krasnogorodskoye Paper Mills, is quoted as saying: "The obstacle to our progress is the frequent unplanned idleness of paper machines. Three machines which turn out high grade products stood idle more than 2,000 hours not called for by the Sixth Five-Year Plan.

"The Chief Western Paper Industry Administration plans too large a variety of output for the mills. A great deal of time is spent adjusting machines. It often happens that paper comes off dry and dirty with black spots.

A powerful pulp and paper industry has been created on the basis of timber resources in Northern areas, including the North Urals. At Solikamsk Combine, paper production was increased 250% in five years. New capacity was put into production at Balakhana and other enterprises.

Balakhana, Kama and Archangel paper workers have produced thousands of tons of pulp and paper over and above the plan quotas.

Competition to cut pulp fiber losses is expanding nationwide. If reduced 15% to 25%, there would be a saving of about 90,000 cu. meters of cleaned wood and 40,000 tons of unbleached pulp and production costs would be reduced by 5,300,000 rubles at Balakhana, Solikamsk and Kondopoga combines alone.

Papermakers of Tallinn are struggling to reduce wood losses and have obtained a high output of one ton of pulp per cu. meter (over 35 cu. ft.) of digester.

The above dispatches from Moscow and Krasnokamsk, special to PULP & PAPER, are unusual. This year is one of free flow of information from behind the Iron Curtain. Pulp and paper industry statistics, surprisingly enough, check out almost 100% with

PULP & PAPER's previous estimates. As, a result, this year's report is probably the most complete presented anywhere on the Soviet Union and in addition to covering pulpwood, pulp, paper and board production, features two exclusive articles on the pulp and paper industry in Russia.

Latest official U.S.S.R. population figures are 200,200,000. With actual paper production data plus imports from Finland, it is possible to arrive at a fairly accurate estimate of per capita consumption: 26 lbs. A late report on Soviet Russia's Sixth Five Year Plan estimates 1955 paper production at 2,563,000 short tons, including board. Paper production is placed at 2,013,000 tons and board at 550,000 tons. Soviet paper industry officials are shooting for a healthy 46% increase in paper production to 2,992,-000 tons and a whopping 180% increase in board production to 1,584,000 tons by 1960.

This report says pulp mills will convert greater quantities of sawmill and forest waste as well as non-wood materials such as reeds. Newsprint and printing paper production are slated for 51% and 60% increases respectively.

Expansion plans include the Karelo-Finnish Republic-now part of Russia -where the existing pulp and paper mills at Kondopog and Segueja are to be enlarged. A new board mill with an integrated sawmill, wood-processing plant and furniture factory is planned at Novo-Kemskaia.

RUSSIA'S FORESTS . . . This Russian report says that the U.S.S.R. has a forest area per inhabitant well over twice the world average. Within its borders are one-third of the growing stock in all the world's forests currently being exploited.

Conifers comprise some 66% of Russia's 2,867,188 sq. mi. of far-flung forests. However, only 19.4% of total land area or 1,640,925 sq. mi. are accessible forests.

A Soviet paper industry magazine savs reeds and rushes were tested for pulping into paperboard. The pulp yield of these raw materials, said to cover 12 million acres in the Soviet Union, were reported at 30% to 40%. One mill has produced 1,210 short tons per year of paperboard from bullrushes.

The FAO says Soviet foresters have been trying to establish plantations in Russia's tundra regions above the Arctic Circle. The upper soil thaws in the summer to about 40 cm to 60 cm.

Soviet production of pulpwood is estimated at 390 million cu. ft. in 1955; a six-fold increase during the postwar decade (about 1/15 of world output). About 3,150,000 cu. ft. are destined for export to Finland in 1956.



## RUMANIA Reaches 5-Year Plan Goal as Production Rises

Population: 15,873,000. Per capita paper consumption: 25 lbs.

 Production (short tons)
 1937
 1954

 Paper
 75,000
 198,000

 Woodpulp
 60,000
 150,000

 Paper exports
 2,000

Rumania's Five Year Plan has come through with flying colors as far as the paper industry is concerned. From 75,000 tons in 1937, paper production soared to 198,000 tons in 1954 (latest available). Per capita consumption is a comparatively lofty 25 lbs.—on a par with the Soviet Union.

About 24,415 sq. miles of Rumania's 91,584 sq. mi. are forested. Conifers are about 25%. However, four-fifths of the population is engaged in agriculture.

Under new agreements with Finland, Rumania will import about \$750,000 worth of paper and board products and about \$575,000 of dissolving pulp in 1956.

Some 2,206 tons of dissolving grade pulps were imported from Finland in 1955

Considerable increase in kraft paper and bag production as well as specialty papers is reported to have been made. Woodpulp production was placed at 127,000 tons in 1952, of which 76,000 tons was chemical pulp and 51,000 tons groundwood. It was estimated at 150,000 in both grades combined in 1954.

## CZECHOSLOVAKIA Has Not Caught Up with

Pre-War Production

Population: 13,000,000. Per capita paper consumption: 51 lbs.

 Production (short tons)
 1937
 1954

 Paper and paperboard Chemical woodpulp Groundwood
 349,000
 317,000

 40,000
 334,000
 324,000

 170,000
 112,000

Principal exports to: Soviet Russia. Principal pulp imports from: Finland.

Pulp and paper has always been an important industry in Czechoslovakia, a country blessed with one of the richest territories in Europe. It has long been a major pulp producer and an important exporter. Backing up the pulp and paper industry is an estimated 15,380 sq. mi. of forests, about 65% conifers, and sufficient national coal production.

But to date, postwar modernization has still fallen short of prewar production: 317,000 tons of paper and board made in 1954 vs. 349,429 tons in 1937. However, per capita paper consumption has climbed from 37 lbs. in 1937 to around 51 lbs. in 1954. Present capacity is rated at 500,000 tons.

Most of Czechoslovakia's paper is produced by a large number of small specialty mills making a wide variety of paper. Board production is about 80,000 tons.

Further expansion, predominantly in the eastern part, is slated where a large enterprise produces pulp from beechwood.

Since World War II, Czechoslovakia has shipped some high quality woodpulp to U.S.A. and other Free World countries. It shipped out 33,000 tons of chemical pulp in 1951. Surprisingly enough, it imported 1,000 tons in 1952 and in 1955 imported 8,804 tons from Finland.

## EAST GERMANY Lost Much Paper Machinery to Soviet Russia

 Population:
 17,313,000.
 Per capita paper consumption:
 73 lbs.

 Production (short tons)
 1954
 1955

 Paper and paperboard Chemical woodpulp Groundwood
 631,000 680,000 370,000 400,000 390,000 400,000

 Principal paper exports
 to: Russia, Bul

Second to Soviet Russia, East Germany has the most important paper and board production capacity in the Communist bloc. However, East Germany apparently took a terrific beating from war damage and removal to Russia and Poland of papermaking machinery, which sliced its production potential to one-third pre-war capacity.

Newsprint production is estimated at around 100,000 tons; printing and writing at 160,000 tons and board production at 225,000 tons.

With an area comparable to Pennsylvania and a population twice as large, East Germany has an estimated 10,623 sq. mi. of forests, of which 80% is conifers. Timber imports come from Albania, Rumania and possibly from Finland.

Potato stalks reportedly have proven a suitable raw material for cardboard pulp. Using special machinery, a process has been developed for pulping one metric ton of stalks with a ½ ton yield of pulp. This is said to be similar to bleached pulp and can be used for newsprint, according to a report.

## HUNGARY Expected to Substantially Boost Paper Output

Population: 10,000,000. Per capita paper consumption: 14 lbs.

 Production (short tons)
 1937
 1954

 Paper and paperboard
 66,000
 60,000

 Groundwood pulp
 22,000
 14,000

 Imports—woodpulp
 8,000

 Imports—paper
 44,342
 6,700

The People's Republic of Hungary is making progress towards attainment of paper production levels of the pre-war era (66,000 tons in 1937 vs. 60,000 tons in 1954). Per capita paper consumption is still a long way from the 24.5 lbs. of 1937. Then, Hungary imported some 44,342 tons of paper vs. 6,700 tons in 1954.

Approximating the state of Indiana in size, Hungary has about 2.5 times the population. Still without a chemical pulp mill, according to U.S. Pulp Producers Assn., Hungary's forests may never be able to support one. Of the 35,902 sq. miles total land area, forests cover about 4,838 sq. mi., of which only 308 sq. mi. are conifers.

One new mill has been announced. At Sztalinvaros, a 22,000 ton/year pulp mill is expected to start up in 1958 using rice straw. This will save Hungary a reported \$2,000,000 a year in imports.

Hungary's paper industry was expected to produce 110,000 short tons when 1955 rolled to an end. This was predicated on accelerated expansion, designed to boost production from 56% increased production to 116%.

Annual production has averaged 55,000 tons since 1949 and based on equipment rehabilitation from Soviet Russia.

## POLAND Exceeds 6-Year Plan Goal; Builds Biggest Pulp Mill

Population: 26,500,000. Per capita paper consumption: 52 lbs.

Production (short tons) 1953 1954
Paper and paperboard 389,400 687,500
Woodpulp 165,000 230,000
Imports of pulp (1952) 42,000
Principal exports to: Russia.
Principal imports from: Scandinavia,

Poland's pulp and paper industry is producing at a better-than-prewar tempo. But it took almost 10 years to recoup the loss of some 660,000 tons of paper and board capacity which it had acquired from Germany before World War II and which was destroyed in the war or else dismantled and taken to Soviet Russia.

Several mills have been rebuilt and some new mills have started up and now total Polish production is well above prewar. Expansion programs in mills taken over from East Germany are estimated to be around 66% of Polish capacity. Paper exports and imports, unimportant before the war, are now deemed considerable, although official figures are not available. Exports go to Soviet Russia and some kraft paper and board to Western Europe, South America and Asia. There is also probably a brisk traffic with other Communist dominated countries

Continued strides lifted paper production from 214,500 short tons in 1937 to 389,400 tons in 1953 and 687,500 tons in 1954. This oversubscribes the Six Year Plan goal of 599,000 tons by a healthy figure.

Poland has paper and timber to spare and this is evident from reports of paper and timber exports to Albania, Red China, Hungary, Rumania and Czechoslovakia.

Under a recently completed trade agreement with Finland, Poland will import 41,800 tons of dissolving pulp; 60,500 tons of paper pulp; 7,700 tons of board; 1,100 tons of wood-free writing and printing paper; about 55,000 tons of converted paper products and some 220,000 tons of various paper and board grades. In addition, more than \$1,000,000 worth of pulp, paper and board mill machinery will move to Poland.

Poland's largest and newest newsprint mill, which started up in 1954, is believed to have added another newsprint machine, 216-in. wide, from East Germany. Additional papermaking equipment from East Germany is expected to permit upgrading of paper production. Experiments on suitability of straw for pulp at this mill have been underway.

Last reports were that a pulp mill, under construction in Justrin, was to be the largest project of its kind. Newsprint from pine at Ostrolenka near Warsaw, was also envisioned at this mill.

### BULGARIA Major Imports from Finland

Population: 7,250,000. Per capita paper consumption: 26 lbs.

Production (short tons)	1937	1954
Paper	24,200	58,300
Woodpulp		6,000
Imports, Paper Imports, Pulp		33,000 5,000
imports, ruip		0,000

Bulgaria's pre-war paper production was about 24,200 tons in 1937 and latest figures available reveal a surge to 58,300 tons in 1954.

This better-than-100% increase in paper production is well above previous estimates for 1954 of 30,000 tons. Coupled with 33,000 tons of paper imports that year, it places this small 42,796 sq. mile Communist satellite on the same level as Soviet per capita consumption of 25 lbs.

This increase in production emanates from new capacities added in the last two or three years.

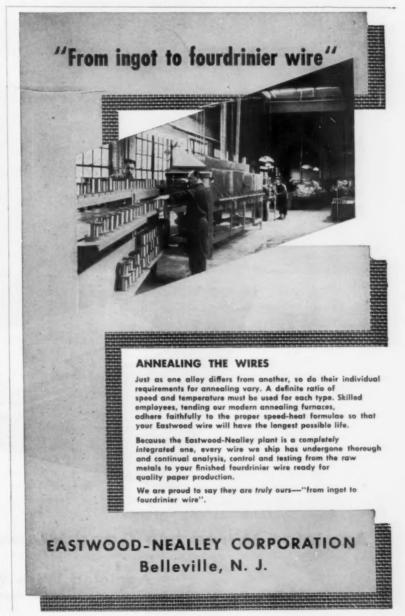
This Soviet satellite made only 6,000 tons of woodpulp in 1952, all of it groundwood, and is estimated to have made as much in 1954. It im-

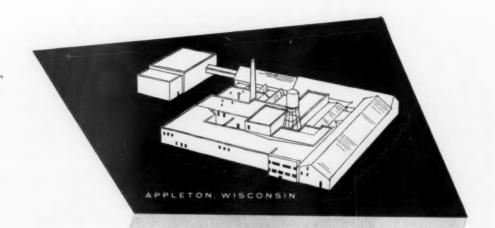
ported 33,000 tons of chemical pulp in 1951.

A pulp mill in Sofia is believed to be one of the latest new operations and was reported to be adding a paper mill for integrated operations. Another integrated pulp and paper mill, under construction last year, is probably in operation.

Bulgaria is about the size of Pennsylvania with a comparable population. Its forests extend 14,286 sq. mi. and conifers comprise about 13%.

Bulgaria is slated to import 1,630 tons of chemical woodpulp; 1,650 tons of mechanical woodpulp; 330 tons of kraft paper; 1,650 tons of board; and about \$175,000 in various other paper grades, from Finland in 1956.





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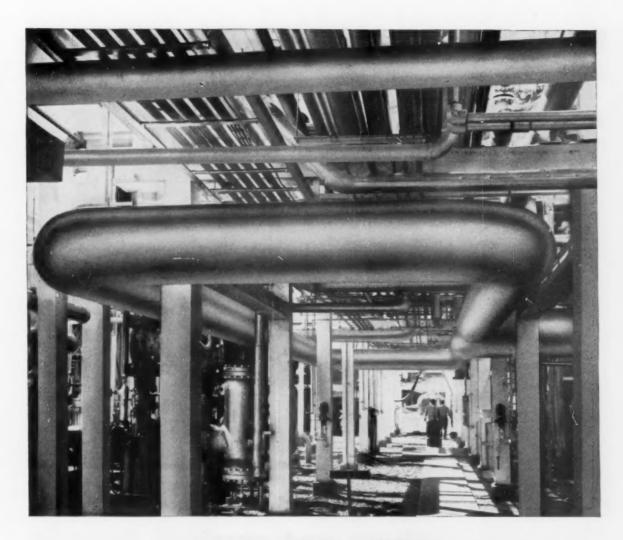


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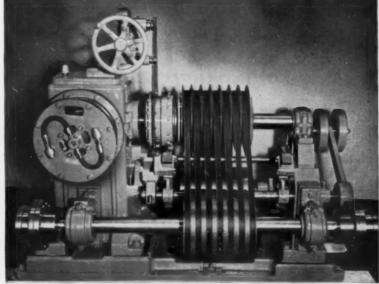
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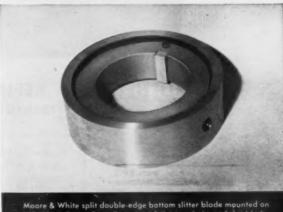
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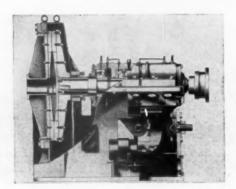
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P-795



### ASSILA

## ISRAEL Outstanding Strides Being Made By Two Israeli Companies

Population: 1,800,000; Per capita paper consumption: 49 lbs.

Paper mills: 2.

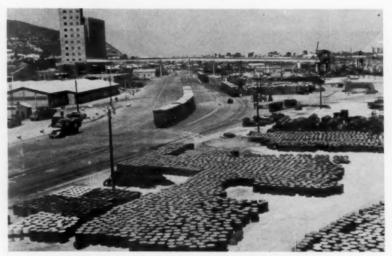
Paper Production:19541955Paper Production:8,25016,500Paper imports:11,00027,500Woodpulp imports:9,00017,600Principal paper imports from:Finland.Principal pulp imports from:Finland.Sweden.Finland.

### By M. D. COHEN American Israeli Paper Mills, Ltd.

Hadera

Israeli's youthful paper industry—only two-and-a-half years old—has made great strides since it began production in Dec. 1953. Originally estimated at about 12,000 tons a year, the consumption of the young nation paperwise has already jumped to 20,000 tons. This year, spurred by increased markets and general enthusiasm of the people in the mills, American Israeli Paper Mills, Ltd., began scientific studies to determine what locally grown fibers might prove most suitable for pulp production.

Close to 15,000 tons of Israeli's



ISRAELI'S RAPIDLY GROWING INDUSTRIAL CENTER is Haifa, the Mediterranean port on the northern coast of the new country. It is port for imported raw materials for American Israeli Paper Mills, Ltd., and exported cartons made by Cargal Co., two new Israel industries.

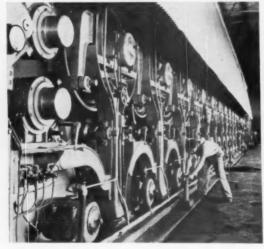
paper needs are filled by this new paper mill. In 1955, its production soared to 7,000 tons more than it was in 1954—almost double the production. Initially designed to produce 40 tons a day, the mill is now making near 60, in weights of 30 to 90 lbs. Daily production of kraft has climbed to 75 tons.

While our technical staff has been driving initial equipment to peak

production, a new stock preparation equipment, including additional Morden Stock-makers and a Morden Slush-maker, was installed during Jan. 1956, to allow for further increases in production capacity. A new 10-roll calender stack by Bagley-Sewall, Div. of Black-Clawson, U.S.A., two additional consistency regulators, and an automatic moisture control were also installed.

Israel's papermaking tradition is only as old as American Israeli Paper Mills itself. To overcome this handicap, paper-makers from the United States, Scotland, England, and Switzerland were hired to operate the mill and train local personnel and an intensive training program is being initiated at all levels.

HOW AMERICANS HELPED . . . In 1950, Joseph M. Mazer, treasurer of Hudson Pulp and Paper Corp., U.S.A., initiated a market and production survey of the Israel market, carried out jointly with the Palestine Economic Corp. of New York. In April 1952 construction began on the modern paper mill, only one of its kind in Israel, on the outskirts of the city of Hadera. The mill was



DRY END OF BIG AMERICAN ISRAELI PA-PER MILLS MACHINE, made by Bertrams, Ltd., in Scotland, is shown in this picture taken in Tel Aviv. Fourdrinier wire is 136 in. wide and the machine has a speed of 1,000 fpm. It makes grades from 30 to 90 weight. completed within 18 months. Production of paper began in Dec. 1953.

The mill was designed and built by Merritt Chapman & Scott, Inc., in conjunction with production executives of Hudson Pulp & Paper Corp.

Today American Israeli Paper Mills Ltd. represents a total investment of over \$4,000,000 by American, European, South American, Australian, and Israeli investors.

All pulp to date has been imported from North Europe. But the company is testing local eucalyptus and vegetable fibers. Parsons & Whittemore, New York, is carrying out pulp research for the mill.

Investigation of the possibility of adding a second paper machine to our present installation for production of lightweight papers is continuing. It is hoped these plans will be finalized during the coming year.

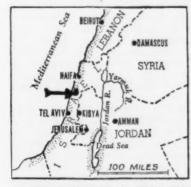
Robert W. Zion, an operating executive of Hudson Pulp & Paper Corp. in the U.S., who has been in Israel since the first stages of construction, is continuing on as our general manager.

Israeli has two other smaller mills. One produces about 600 tons a year of bogus toilet tissue and the other, the Cargal Co., produces chipboard and new types of boxboard.

## New Uses for Board at Cargal By S. DUBINER Partner, Cargal Company

One of the most important developments in the pulp and paper field in this part of the country has been the acceptance and widespread use of the new Cargal kraft linerboard carton for shipment of citrus fruits.

The changeover in Israeli packaging of fruits from wooden boxes to kraft containers has resulted first in savings to the fruitgrower and,



ARROW POINTS TO 2½ YEAR OLD AMERICAN ISRAELI PAPER MILLS. It is located at Hadera, which is between Tel Aviv and Haifa. Its woodpulp and raw materials arrive at latter port.

second, in the additional use of some 40,000 tons of kraft board a year. It is felt by many observers that Cyprus, North Africa, Spain, Lebanon, Greece and Turkey will quickly follow the example set by shippers of Israeli fruit. We estimate that by 1960 we will have buyers for over 150,000 tons of kraftliner in this area a year.

Initial tests have already been made on Cyprus and by April, 1956, more than 25% of the fruit growers there had swung to the use of Cargal cartons for shipping fruit. Under the most adverse conditions, cartons stacked as high as 17 high have stood up remarkably well. The percentage of waste, checked by our engineers on the spot, is 50% less than the average waste in wooden boxes and prices in some places have been as much as 40 to 45 cents a carton higher than prices for fruit packed in wooden boxes.

The new Cargal factory, built last year, has made new additions in the past year and now has 110,000 sq. ft. (it was 35,000 when reported in last year's PULP & PAPER REVIEW NUMBER.) Additional printer-slotters and other equipment have been added, more than doubling original capacity. The Cargal Co. now has sales and service offices in Cyprus, Turkey, Greece, Kenya and Abyssinia.

In 1957, our new equipment will go into service, boosting annual production to about 30,000 tons. We are already producing 1,000 tons a month of cartons.

## TURKEY Fourth Mill Is Projected as Existing Trio Push Expansion

Population: 22,500.000. Per capita paper consumption: 7.7 lbs.
Paper mills: 3 Woodpulp mills: 1 Strawpulp and rag mills: 2 Production (sh. tons) 1954 49,500 38 500 Chemical woodpulp 14,300 13,090 14,850 4,400 19,800 4,500 Mechanical woodpulp Straw pulp 37,400 38,500 3,300 3,000 Paper imports Woodpulp imports Principal paper grades made: All kinds Principal paper imports from: Finland, Sweden, Canada Principal pulp imports from: Sweden Fabrikalar

The Seluloz Ve Kagit Fabrikalari Isletmesi Umum Mudurlugu of Turkey provides PULP & PAPER with new information that paper production in this country increased from 38,500 short tons in 1954 to 49,500 (45,000 metric tons) in 1955. Besides three paper mills with seven machines, Turkey has one woodpulp mill

#### TURKEY-PAPER & PULP

	(	in thou	sands	01 5	hort tons	()	
	Paper	Chem.			iction undwood		ports n. Pulj
1951 1952	23.2 30.0				8		2 3
1953 1954 1955				178 160	13 10.5	21 21	316 326

and straw and rag pulp mills.

C. Silabcloglu and S. Koray of the above organization reported that 8,200 short tons of newsprint were made last year, 5,600 tons of kraft papers, 770 tons of tissue, and 550 tons of cigaret and fine papers. Most imports of paper, they said, came from Canada, Sweden and Finland.

Turkey, which now boasts of three pulp and paper mills, is planning a fourth one. The government has selected a site in the province of Icel and reportedly a group of American specialists is making a survey. Turkey in the past year received American financial aid for pulp and paper products needs.

Turkey's present three mills are owned and operated by the Sumerbank organization, which control some 39 large scale industries of different sorts. Turkey's first paper mill, Sumerbank No. 1, was built in 1936. It now has two 87-in. trim machines making printing, wrapping and board. No. 2 mill, built in 1944, has a new Yankee on a 112-in. machine making fruit wrap, etc. Another 112-in. machine makes newsprint and a 68-in. machine makes cigaret paper. No. 3 mill was built only three years ago. It has a 112-in. combination machine and a strawboard machine, along with corrugator, bag plant, etc.

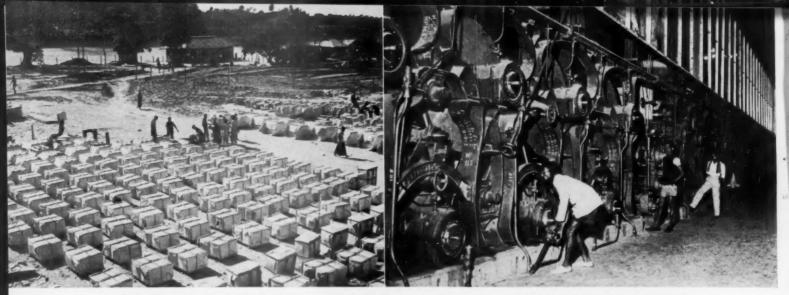
The three Sumerbank mills made only 18,400 short tons of paper and board in 1949. By 1952, they had raised their output to 30,000, by 1953 to 32,600, by 1954 to 42,020 and last year an expansion program was being carried out to attain a total production of 110,000 tons.

## PAKISTAN Demands Filled in Some Grades; Four Mills Being Built

Population: 80,000,000; Per capita paper consumption: 2 lbs. Paper mills: 4

Paper mills: 4	1054	1055
	1954	1955
		(Est.)
Paper Production	20,000	30,000
Pulp Production	_	8,000
Paper imports (short tons)	15,000	12,000
Principal paper imports	from:	Sweden
Canada and U. K.		

Karachi Pakistan is the first Islamic republic in the world. With its new freedom



PAKISTAN NEARS PER CAPITA PRODUCTION IN HIGH GRADES as this picture of paper from big Kharnaphuli mill shows. Pakistan now meets per capita demand in high grade papers but is still short on newsprint and other grades.

NATIVE LABOR OPERATES WALMSLEY MACHINE, built in Britain, at the big Kharnaphuli mill in Pakistan. This mill at Kharnapuli will eventually produce about 100 tons a day, now makes 75.

have come ambitious industrial plans. The paper industry figures high on the "priority list" of economic development planned by the young nation. For at least two years now, Pakistan has been striving to achieve self-sufficiency in pulp and paper production. The per capita consumption of paper here is low—two pounds per person—and no particular effort is being made to increase it. But Pakistan is attempting to produce at least the per capita demands of its people.

#### HOW PLANS ARE SHAPING UP

. . . Presently under construction are four paper and board mills. The largest of these is at Chandraghona, a sulfate mill which will produce about 33,000 short tons of paper and board and 33,000 short tons of chemical pulp a year. Bamboo will be used here.

At Rahwali, a mill utilizing straw is now in production. Its annual capacity: 30 tons a day of strawboard and wrapping paper. The new mill mill will produce both heavy substance strawboards and paper of cheap wrapping paper quality. With completion of this mill Pakistan will

#### PAKISTAN—PAPER IMPORTS

	Wrap-	Print- ing inc. news	Writ-	Paper- board	All Paper (inc. others)
1950 1951 1952 1953 1954 1955 (Est.)	6,226 1,618 2,500 2,182 1,800 500	8,871 11,255 12,000 6,766 6,500 8,000	2,477 2,537 2,800 4,000 3,200 1,200	3,080 3,497 4,000 6,772 3,500 2,000	23,516 21,228 24,411 20,000 15,000 12,000

achieve self-sufficiency in a number of grades of high-grade board and strawboard.

At Karnaphuli, the paper mill is now producing 30,000 tons a year of high-grade board and a paper mill at Nowshera is turning out 7,500 tons. Consumption of these grades is estimated at about 45,000 tons annually. The newsprint shortage is being

The newsprint shortage is being tackled with a mill in western Pakistan at Khulna which will produce 33,000 short tons of newsprint and 22,000 short tons of mechanical pulp a year. This mill, on the Ganges River, will be completed in 1958 and will be powered from steam generators using coal imported from India. Tests for this mill were performed at Madison, Wis., U.S.A., and indicate best pulp furnish at present will be 65% ordinary groundwood, 25% chemical

groundwood and 10% long fiber chemical pulp. The mill will have two Walmsley machines, two 146-in. Fourdriniers, one for newsprint, the other for mechanical printing.

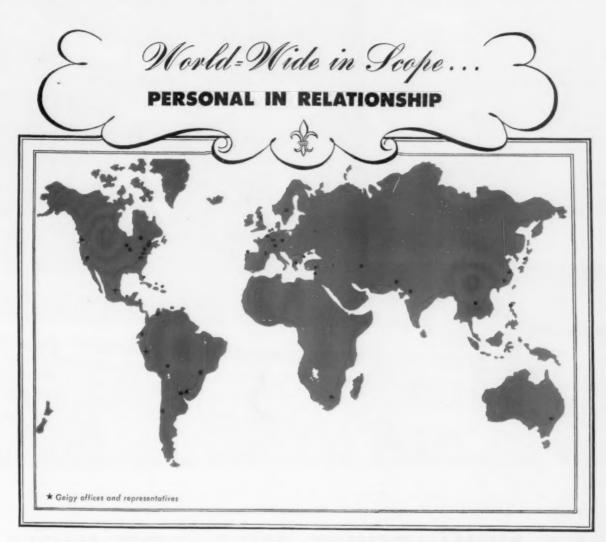
ROLE OF PIDC . . . The Pakistan Industrial Development Corporation, a government-financed, semi-independent group, is the driving force behind most of the industrialization in Pakistan. Its four year record of achievment is impressive, according to R. K. Thomson, Commercial Secretary for Canada at Karachi, Pakistan. PIDC backed Chandraghona, Karnaphuli, Nowshera and Rahwali projects and also backed a 750-ton jute mill and additional mills with an annual capacity of 6,000 tons.

PIDC also has further plans for expansion of jute and newsprint in the future. The Kharnaphuli mills, for instance, are ideally located on the banks of the Kharnapula River and can be easily expanded. Eventual aim here is to boost production to 100 tons a day-it now runs about 75. Surplus production will go into export. This mill has three Walmsley machines, two Fourdrinier machines and a 14cylinder machine. Two are for writing and printing and the third machine is for glazed kraft. These mills are now making machine finish and supercalendered printings, cream laid writings, ledger, bonds, kraft, brown wrapping and certain qualities of cards. Much of this production goes to heavily-populated West Pakistan.

HOW PRODUCTION HAS CHANGED . . . Pakistan's move toward bigger and better paper production is characterized by its gradual increase in paper manufacturing. In 1952, the country used 9,000 short tons. It has been estimated that this will be up to about 25,000 tons by 1962. Printing paper consumption is also on the rise and should reach the 15,000 mark by 1962.



CHANDRAGHONA MILL NEARS COMPLETION in Pakistan. It will produce 33,000 tons of paper and board and 33,000 tons of chemical pulp a year from bamboo. P.I.D.C. backed this and other big industrial projects.



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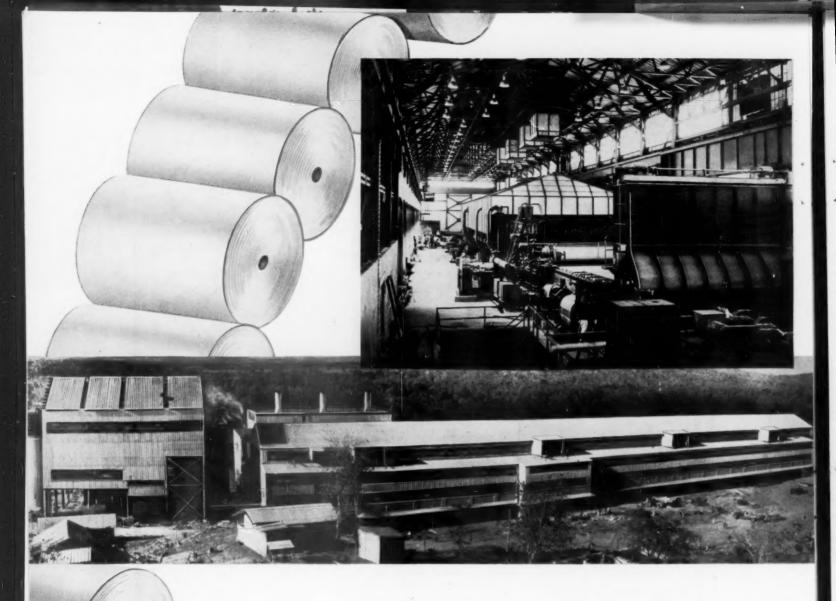
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#### FIRST NEWSPRINT MILL FOR INDIA

Newsprint to serve India's millions now flows from this modern mill at Nepanagar, 325 miles from Bombay. It is the first modern mill designed to use bamboo as a major raw material in the manufacture of newsprint.

The site of the plant is in a salai forest—a native wood used with bamboo in the pulp-making process. Ebasco engineers utilized salai and bamboo in modern pulp-making processes to enable India to produce newsprint from its own natural resources.

Design and supervision of construction of the plant was handled by Ebasco. The 12 million dollar installation includes Groundwood and Chemical Mills, Paper Machine, Storage and Shipping Buildings and Workshops.

This project for the National Newsprint and Paper Company, Ltd. of Nagpur, India, provides another example of the wide scope of Ebasco's services and Ebasco's capacity to handle unusual jobs anywhere in the world.

For a complete outline of the services Ebasco offers, write for our booklet, "The Inside Story of Outside Help." Address: Ebasco Services Incorporated, Dept. 2, Two Rector Street, New York 6, N. Y.



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#### **INDIA** Drives Toward 5-Year Plan Goal-More New Mills

Population: 380,000,000, Per capita paper consumption: 1.9 lbs. Paper mills: 20 Strawboard mills: 5

Strawboara mius: 5		
Production (short tons)	1954	1955
Paper	139,795	166,396
Groundwood pulp	-	2,700
Straw pulp	22,500	22,500
Paper imports	122,088	126,334
Paper exports		1,813
Woodpulp imports	14,339	18,849
Principal paper grad sulfite, book, writing, p newsprint		
Principal paper impo	rts from:	United
Kingdom, Scandinavia		
Germany, Canada		
Principal woodpulp in		m: Swe-
den, Canada, West Ger	rmany	

#### Principal paper exports to: Burma, Ceylon, Southeast Asia By DR. R. V. BHAT

#### Officer in charge, Cellulose and Paper Branch Forest Research Institute

Dehra Dun India's total production of 203,372 short tons of paper and paperboard in 1955 was an encouraging indication of the industry's efforts to reach the first Five-Year Plan target of 220,000 tons.

The installed capacity of the industry was 205,000 tons. It was expected that the second Plan target would be 660,000 tons, but present indications are that the annual capacity target may be fixed instead at about 500,000 tons.

The government has taken measures to explore the possibility of supplying more fibrous raw materials for the manufacture of more paper.

ANOTHER NEW MILL . year 1955 saw the birth of West Coast Paper Mills, Ltd., in Bombay state, with an authorized capital of 50,000,000 rupees (about \$15,000,-000). This is an integrated pulp and paper mill with an initial production

#### INDIA-PAPER PRODUCTION

	(in short	tons)	
	1946	1954	1955
Printing,			
Writing	71,390	104,286	107,54
Wrapping	17,257	24,437	25,48
Paperboard	20,446	23,281	28,31
Specialties	7,506	4,577	5,04
TOTAL	116,599	156,581	166,39

#### INDIA-WOODPULP IMPORTS

								(	87	n	1	81	n	0	r	ĭ	ī	0	n	18	IJ							
1950		0	0						0	0				0			0	9		0	0	0	0	0	0	0	9	8,563
1952				0	0		0				0							0		0	0			0	0	0	0	6,24
1953				0		0					0	0	0	0	0			. 0		0		0		0			0	13,82
1954															٠	6	۰	0			0	0	0			0	0	14,339
1955		*		*						*					×	K					×	*	×	*		×	6	18,849

DR. R. V. BHAT -He reports Nepa Mill, with American machine, is ready to make first newsprint with 100% Indian raw materials — salai and bamboo. Ebasco (U.S.A.) built mill, so far running with imported pulp.



capacity of 60 tons of paper a day with provision to expand production to 100 tons a day. Orders for machinery have already been placed and the mill is expected to go into production in 1957. This will be the first mill in Bombay state to manufacture paper from bamboo.

Schemes have been prepared for setting up paper mills in Orissa and Assam which abound in bamboo. A paper mill operator in Bengal has been negotiating with the Forest Department of Assam for the lease of certain bamboo forests for establishing a pulp mill in that state.

A paper mill in Utter Pradesh will be the first in the country to manufacture kraft paper from wood, if the present negotiations with the State Forest Department for the lease of its twisted pine forests succeed. Some existing mills are further expanding their present capacity.

PROGRESS OF FAMED NEPA The Nepa (National Newsprint & Paper Co. Ltd.) mill has passed its teething troubles and is entering the second Plan with the management full of confidence. This Ebasco-engineered mill is at Channi, Madhya Pradesh state, 325 miles northeast of Bombay.

The trial production convinced those behind this enterprise that bleaching of the salai groundwood pulp was necessary. The newsprint now manufactured by this mill on its Pusey & Jones 226 in. Fourdrinier (U.S.A.-built), biggest machine on Asia mainland, contains not less than 60% salai groundwood (bleached). It started up in 1954. The erection of its chemical pulp mill has been completed and the plant is now in a position to produce, for the first time, newsprint from 100% Indian fibrous raw materials-bamboo and salai trees. During the trial production, imported sulfite pulp was used for mixing.

PULP NEEDS . . . India spent about 20,000,000 rupees (\$6,500,000) in 1955 for importing about 23,000 tons of woodpulp of which the viscose rayon industry consumed about 17,500 tons. With the expansion of existing units and the setting up of new units, the pulp consumption by the viscose rayon industry during the second Plan period is expected to rise about 38,500 tons a year.

Attempts are being made to set up a dissolving pulp mill in the country. A process has already been worked out at the Forest Research Institute, Dehra Dun, for preparation of viscose rayon grade pulp from blue gum (Eucalyptus globulus) by the water prehydrolysis-sulfate method.

For the first time in the history of technical education in India a degree course for advanced training in pulp and paper technology will be started at the Forest Research Institute.

The Nepa mill referred to by Dr. Bhat is entirely owned by the state government, and till its presses rolled off the first newsprint India was entirely dependent for her supplies of this type of paper on foreign sources. In 1947-48 India imported about 48,-400 tons of newsprint valued at about \$10,000,000, and during the 1954-55 period imports were up to 86,000 tons valued at more than \$20,000,000. Average imports have been about 72,000 tons a year and current demand runs between 77,000 to 88,000 tons. The Planning Commission estimates that by 1960 demand for newsprint will be some 110,000 tons.

Madras government is planning a mill in the near future in the Nilgiri Hills, where natural facilities are in abundance, according to the High Commission of India in London.

#### **TAIWAN**

#### More Mills Being Built and Machines Added with U.S. Aid

Population: 9,186,609; Per capita paper consumption: 13.5 lbs.

Paper mills: 41; Bagasse pulp mill 1,

Bamboo pulp mill, 1. Production (short tons)
Paper (incl. board) 1954 47,604 18,536 56,791 20,273 Paper (incl. board) 47,004
Bagasse & other pulp 18,536
Paper imports 10,033
Paper exports (incl. board) 106
Woodpulp imports 13,476 4,699 680 Bagasse pulp exports 3,700 4.270 Principal paper grades made: Newsprint, kraft, sulfite, paperboard, tissue, cigaret. Principal paper imports from: Sweden, U.S.A., Canada, Japan.

Principal woodpulp imports from: Canada Sweden.

Principal paper exports to: Hongkong. Principal bagasse pulp exports: Japan, Ko-

Taipei

American aid funds and technical assistance have combined to build up a relatively strong pulp and paper industry in Taiwan (Formosa). This is calculated as part of the defense of this Nationalist China stronghold.

Taiwan has over 116,000 acres of bamboo and here is a possible source of further pulp and paper expansion. It is said to grow 400,000 tons of bamboo every year.

#### By NI-HUNG CHANG

#### Chemical Engineer Lotung Pulp & Paper Mill

Lotung There are two new mills planned this year in Taiwan. They are Chutai Paper Mill and Longlived Paper Mill. The Longlived Paper Mill has ordered a modern paper machine. It is under private management and its production will be comparable to some of the larger mills in Taiwan. Capacity will be about 7,200 tons per year.

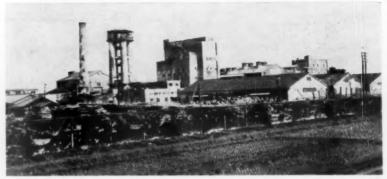
Our Lotung Mill is still the biggest on the island and it has five Fourdrinier paper machines. Its production capacity at present is about 45 short tons per day. A new 120-in. Fourdrinier machine will be erected by the end of 1956. This is being financed by a loan through a U.S.A. aid fund. Newsprint production is being increased on Lotung machines.

After the new machine is in, the additional production will be from 9,000 to 12,000 tons per year. A new mill manager is in charge at Lotung. He is Mr. L. T. Kan.

Lotung is one of the three paper mills of the Taiwan Pulp & Paper Corp., which last year was sold by the Chinese government to private owners.



HERE'S WHAT TAIWAN (FORMOSA) HERE'S WHAT TAIWAN (FORMOSA) LOOKS LIKE. "Their paper mill methods are old-fashioned but at least they are making paper," said Karl Clauson, president of Stora Kopparberg Corp., who visited this embattled island. Paper and pulp are helping it hold out against Red China. Mr. Clauson's pictures of the war bomb wrecked Lotung mill—before and after repair—and other pictures he took in Taiwan were in our 1954 WORLD REVIEW NUMBER. Mountains on this map rise up to 14,000 ft. map rise up to 14,000 ft.



FREE CHINESE PUTTING 6TH MACHINE IN THIS MILL. This is Lotung Mill of Taiwan Pulp & Paper Corp. A new 120 in. Fourdrinier will start up in late 1956, of Taiwan Pulp & Paper Corp. A financed by U.S.A. aid fund loan.

#### TAIWAN-PAPER PRODUCTION

(in short tons) Paper Board 4.388 1947 9.761 14,165 4,477 1950 15,296 3.879 18,038 5,511 1951 6.291 1952 28,503 6,659 1953 31,829 1954 39,270 8.334 1955 45,142 11,649



FROM GOVERN-MENT TO PRI-VATE OWNERS VATE OWNERS

—Last year, K.Y.
YU (shown here)
became President
of Taiwan Pulp &
Paper Co. He had
been Chief Engineer under government.

TPPC also owns a board mill and pulp mill. The new owners include many farmers. This was part of a government land reform program and to encourage private enterprise.

The Taiwan company's pulp mill, the Hsinying Mill, is the largest pulp mill on the island. It makes bleached bagasse pulp. A project is being carried on to change its cooking process from sodium sulfite to a kraft process, with a chemical recovery unit. This is also financed by a loan from the U.S.A.-China aid fund. It is to be completed by the end of 1956. Part of the project at Hsinying will increase bagasse pulp production to at least 25,000 tons.

The Taiwan company (TPPC) has also converted a paper machine to board production at Tatu mill, where bamboo pulp is made by a low acid magnesium bisulfite cooking process.

#### Japan's Big 5 in Paper-Pulp

Paper Mfg. Cos. Pulp Mfg. Cos. Tomokomai Tohoku Jujo Kokusaku Honshu Sanvo Hokuetsu Nippon Mitsubishi Kokoku

#### **JAPAN** Bright Future now Ahead, Surprise Demand for Exports

Population: 89,276,000, Per capita paper

roputation: 89,276,000, Per capita paper consumption: 52.5 lbs. Paper mills: 571; straw and vegetable fiber pulp mills: 6 Pulp mills: 256 Production (short tons) 1954 1955 Paper 2,118,711 Chemical woodpulp 1,142,002 2,429,064 1,367,968 Mechanical 648.893 725,706 woodpulp Straw or vegetable pulp Paper imports 8.131 9,031 3,555 64,600 1,265 86,386 Paper exports Woodpulp imports 91,476 4,418 125,988 Woodpulp exports Principal paper grades made: All kinds Principal woodpulp imports from: North America, Scandinavian countries

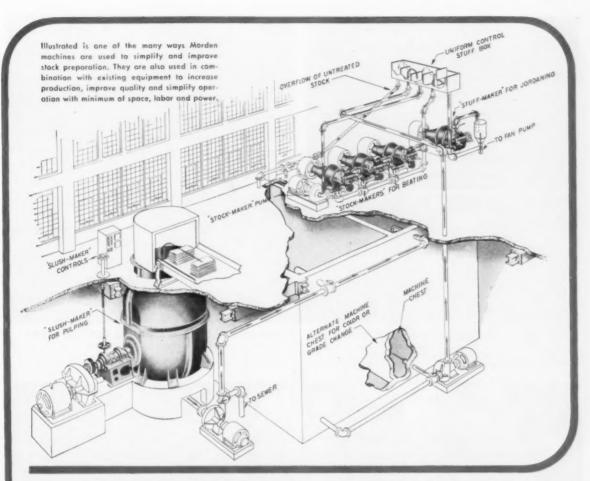
Principal paper exports to: Hong Kong, India, Australia Principal paper imports from: U.S.A., Sweden, West Germany

#### By K. MIYAHARA Chief of Pulp Section The Gosho Co., Ltd., Tokyo.

For the pulp and paper industry of Japan, 1955 was one of the most prosperous years in its history. The industry had a good start for the new year, for, by the close of 1954, it had already weathered the rock-bottom of depression and, as was predicted by this writer in PULP & PAPER's Review of last year, it showed signs of recovery with a bright future ahead.

Favored by the "boom" in the U.S. and elsewhere, Japanese exports increased each month. And at home, Japan was given an unprecedented bumper crop. No wonder pulp and paper production hit another new record high. Japan produced 2,064,-700 short tons of pulp and 2,429 069 tons of paper, 17% and 15% more than in 1954.

When figures are adjusted between the quantities of paper produced, exported and imported, domestic de-



## The MORDEN System of Stock Preparation

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Representatives:

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PULPING
Separating one fiber from the other in preparation for

BEATING
Brushing or fibrillating, with emphasis on retention of fiber length for strength.



JORDANING
Shortening or
cutting for formation and
final control
(if required).



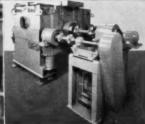
Other Representatives in Most Paper-making Countries

#### ANNUAL REVIEW

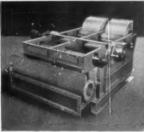
of
machinery and equipment
for making
better pulp and paper and
more of it per day at
lower cost per ton



BIRD SCREENS — final barrier against dirt that hurts paper quality, damages machine wires.



BIRD VIBROTOR SCREENS
— for slotted plate screening of large volumes of pulp and paper stock at high consistencies.



BIRD JONSSON SCREENS
— for perforate plate knotting
and screening of high consistency stocks at exceptionally
low power cost.



BIRD CENTRIFFLERS take stock from the pulpers, diluted to about 1½%, deliver up to 1500 rpm cleaned stock.



**DIRTECS** — for removal of dirt particles from pulp or paper stocks; available in regular or "king" size.



BIRD CENTRIFINERS accepted means of removing fine dirt, rubber or metal particles from special papers, e.g.,



BIRD LIME MUD FILTERS
— permit operation of lime recovery plants to deliver uniformly dried kiln feed for greater
kiln efficiency and lower cost.



BIRD CONSISTENCY REG-ULATORS — provide continuous chart record of incoming and outgoing consistencies (latter controlled to within 0.1%).



BIRD SAVE-ALLS—recover valuable fibre from white water. Save stock, filler, color, water, time and labor.



VICKERY DOCTORS — keep roll surfaces clean; designed for quick blade change, oscillation, or air lift, as needed.



VICKERY FELT CON-DITIONERS — keep press felts continuously clean, fresh and absorbent without mid-week shutdowns.



VICKERY WET FELT CON-DITIONERS — keep cylinder machine top and bottom felts clean without showers or whippers.



**BIRD CORLOCS** — modern, lightweight safety locking core arbors for continuous or sectional cores.



BIRD SHOWER PIPES self-cleaning and oscillatory types. Top scouring efficiency, lowest water consumption.

BIRD MACHINE COMPANY

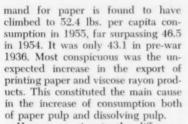
#### SOUTH WALPOLE, MASS.

REGIONAL OFFICES: EVANSTON, ILLINOIS PORTLAND, OREGON • ATLANTA, GEORGIA

Canadian Manufacturers of Bird Machinery
CANADIAN INGERSOLL-RAND COMPANY, Limited, Montreal



HOW SANYO PULP CO.'S GOOTSU MILL HANDLES WASTE LIQUOR. These pictures obtained by PULP & PAPER from Meder Johnson, James Brinkley Co., show a general view of Sanyo firm's new Gootsu sulfite pulp mill, where Mr. Johnson served as consulting engineer. They also show two views of how Gootsu disposes of its sulfite effluent. In one view are dilution tanks for waste liquor and white water. The other view shows a spraying treatment in disposal of the sulfite waste liquor which is quite unusual.



However, owing to the difference prevailing in the paper and rayon industries, increase of pulp production presented a somewhat spotty showing. There was a 19.7% increase in paper pulps as against 2.6% in other pulp. This was the result of differences in character of the respective users.

There are hundreds of small paper mills. Of all the kinds of paper pulp, sulfite pulp, with only one-quarter of

#### Of all the dissolving pulp, 90% is placed for sale on the market. In ad-

dition, imported pulp is also offered in competition. These circumstances naturally combine to make price-rais-

crease was well absorbed by consump-

SEMI-CHEMICAL PULP . with 31% increase.

Quantitatively, semi-chemical production amounts to around 50,000 tons only, not occupying a significant ratio in the over-all picture. Nonetheless, with the increase of semi-chemical production, the production of sulfite pulp has little hope of being increased in production in the future.

The above-mentioned increase in kraft and semi-chemical pulp production prompted increased utilization of hardwood. The percentage of use





went up to 13.88% as of the end of

1955, from 8.95% in 1954. This in-

creased utilization of hardwood is con-

tributing to cost reduction and to solu-

tion of pulpwood problems by ex-

panding the range of usable raw ma-

As for 1956, inventories of paper

were again high, and among pulps,

sulfite paper pulp inventories were

high. Production in the rayon industry

is increasing and the inventories of

dissolving pulp were low, and a fierce

scramble for this pulp seemed likely.

There will be more imports of dissolving pulps. This may ease the sul-

fite paper pulp situation, as mills can

switch over to dissolving sulfite grades. A "Neutracel Pulp" in Japan

The Kanzaki Paper Mfg. Co., Ltd.,

of Osaka, largest manufacturers of

coated papers in Japan (50 tons of coated, 90 tons of uncoated daily) is

now making what has been called by

Hammermill Paper Co. men (who de-

veloped Neutracel in America) a

"Neutracel Pulp." (See PULP &

PAPER story on the process, May 1956 issue.) At Kanzaki it is a semi-

chemical hardwood process with a

yield of 50 to 55 and a high bright-

ness, according to Hiroshi Fujii, vice

president of the Kanzaki research

laboratory, and Tamotsu Ezaki, of the

staff of the Kanzaki engineering dept.

its production placed for sale on the market, has just 10 or so suppliers. In contrast, the users in the dissolving pulp field number just over 10, all big in capital and operation scale, even bigger than pulp companies.

ing difficult, thus blunting production incentive and resulting in this spotty picture of increase of production. The feature of the paper industry in 1955 was that, although 15% more was produced than in 1954, the in-

actly as had been expected from the year before, semi-chemical pulp registered a sharp increase of 233%, giving an impression that this category might get to be "the favorite child" of the industry. Runner-up was kraft pulp

MORE HARDWOODS USED . .

For those who knew the old Japan-Kanzaki is successor company to the former widely known Oji Paper Mfrs., disbanded by U.S. occupation officials. Kanzaki's hardwood pulp mill, 30

#### JAPAN—PULP PRODUCTION

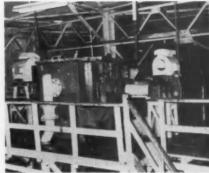
	In	Thousas	nds of	Short To	289	
	Suifite (Rayon)	Sulfite (Paper)	Sul- fate	Soda Other Chem.	Gr'nd Wood	Total
1938	113	444	69	3	419	1,050
1941	326	481	84	117	463	1.410
1949	50	188	33	8	314	595
1950	111	230	64	34	386	824
1951	190	304	100	85	516	1.195
1952	205	398	158	58	549	1.366
1953	248	484	247	59	624	1.662
1954	297	470	317	50	649	1.799*
195	308	490	480	40	725	2,094*

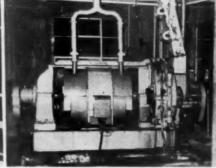
\* Also incluss 16,000 tons of semi-chemical in 1954 and 50,000 tons in 1955.

#### JAPAN-PAPER PRODUCTION, IMPORTS, EXPORTS, CONSUMPTION

	(In the		figures i					
	Pro-		Consumed					
	duced	Imports	Exports	Total	Capita			
1937	1,600	70	135	1,535	43			
1946	231	_	2	229	6			
1949	695	12	6	701	17			
1950	962	0.1	22	941	23			
1951	1,286	1	48	1,239	29			
1952	1,479	9	17	1,472	34			
1953	1,942	14	19	1,529	44			
1954	2,119	4	65	2,058	47			
1955	2,429	10	85	2,354	52.5			

(1937 and 1946 were high and low record years rior to the recent peaks). Source: Ministry of International Trade & Industry.



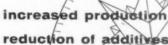


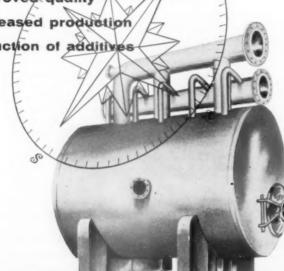


AMERICAN EQUIPMENT HELPS MAKE JAPANESE MILL A LEADER. (Left) Lindblad screens in Kanzaki paper mill. (Middle) Sutherland refiner. (Right) Bird Machine Dirtecs. Other American-made equipment in this 6-machine mill includes Pandia continuous digesting system, DeZurik regulators, Morden Stockmaker, Vortraps, Sprout-Waldron disc refiner, 230 Bauer Centri-

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tons a day, is the first continuous installation of its kind in the country. Since starting the new Pandia (Black-Clawson, U. S. A.) continuous pulp mill, the fine paper furnish runs about 30% hardwoods.

By blending red pine sulfite pulp and bleached semi-chemical pulp, which is comprised of about 30% beech, 30% oak and 40% other hardwoods, all grades of paper show substantially improved characteristics.

The Pandia continuous digester is a 4-tube unit, the tubes being 36 in. in diameter and 24% ft. long. The drives are of the variable speed type.

New equipment imported from the U. S. A. for the Kanzaki operations also include DeZurik regulators, a Morden Stockmaker, Sumner 8-knife chipper, Sprout-Waldron disc refiner, Vortraps, Lindblad screen and Bauer Centri-Cleaners (230 of them-182 on primary, 35 on secondary, 7 on tertiary, 4 on the fourth and 2 on the fifth). Its six paper machines range in size from 72 in. to 145 in.

Other pulp is produced in a No. 1 sulfite 16-ton, two batch digester and a 1 ton soda batch rotary globe di-



KANZAKI EXECS VISIT IN U.S. (L to r) HIROSHI FUJII, Vice Pres. of Résearch Laboratory, Kanzaki Paper; HENRY DATY, C. T. Takahashi & Co. (N.Y. office), and TAMOTSU EZAKI, Staff of Engineering Dept., Kanzaki.

Jombine the low rolling friction of a ball add the greater load-carrying capacity of a roller and see the basic advantages offered you in a Shafer "self-aligning" Bearing. In a Shafer Bearing the inner race is a segment of a true sphere and rollers are concave so that loads are carried on more than half of center area contact Even under conditions of shaft deflection (and the truest shaft misaligns under operating stress and strain) Shafer | rollers keep in line (7) with the direction of race rotation--providing automatic self-alignment. Contact remains in center area loss of capacity or extra wear as in the average roller bearing, where deflection shifts the load area to roller edge capacity, causing uneven wear, pinching and binding. Add such exclusive Shafer features as positive "Z" seals, Micro-Lock adjustment that compensates for wear, and you'll see why in designall industry looks for SHAFER or replacing on Pillow Blocks Flange Units Cartridge Units Take-up Units Flange Cartridge Units Take-up and Frame Units Duplex Units Call or write and Self-Contained Bearings Shafer Bearing Division of Chain Belt Company, 801 Burlington Ave., leading Bearing Design SHAFER for more than 33 years!

#### HONG KONG

#### Both Imports and Exports Rise Sharply in Hub of Orient

Population 2,260,000; Per capita paper

	1954	1955
Paper Imports	73,373	95,042
Paper Exports	29,087	38,669
Paper Consumption	44,286	56,378
Principal papers exports	to: South	Korea,
Taiwan, Indonesia, Chi	na.	

Hong Kong

Hong Kong, which is the financial hub of the Orient, manufactures no paper but serves as one of the most important trafficking points for paper in the Eastern world. Paper imports have risen from 34,800 tons in 1953 to 95,000 tons in 1955; exports from only 8,800 tons in 1953 to 38,669 in 1955.

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American Israeli Paper Mills, Ltd.	
B.F.D. Company Ogdensburg and	Plattsburg, New York
Bedford Pulp & Paper Company, Inc	
Camp Manufacturing Company	
Champion Paper & Fibre Company	
Container Corporation of America	
Dexter Sulphite Pulp & Paper Company	
Hudson Pulp & Paper Corporation	
National Container Corporation	Jacksonville, Florida
	Valdosta, Georgia
St. Joe Paper Company	
St. Regis Paper Company	
	Pensacola, Florida
Southland Paper Mills, Inc.	Lufkin, Texas
Tasman Pulp & Paper Co., Ltd.	
Union Bag & Paper Corporation	

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#### RED CHINA

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#### Shooting for Consumption of 500,000 Tons by 1962

 Population:
 601,000,000;
 Per capita paper consumption:
 1.6 lbs.

 Production (short tons)
 1955

 Paper and board Paper imports
 Up to 400,000

 Newsprint imports
 25,000 (1952)

 Newsprint exports
 30,000 (1956)

Principal paper and pulp imports from: Russia, Sweden, Finland, Norway, Poland Principal paper exports to: Ceylon

A trickle of information on pulp and papermaking comes through the Bamboo Curtain. Some suspicion as to how reliable it is comes from the Peiping People's Daily:

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Lately, concentration has been towards extracting the maximum production from the handmade mills and by renovating existing equipment rather than building new mills.

The FAO says that the low increase in production planned for 1953 (6% over 1952 vs. 60% from 1950 to 1951 and 26% from 1951 to 1952) indicates the limit that can be achieved on the basis of existing mills and "cottage" industries is being reached, and that any further substantial increase must be effected through creation of new capacity

In the 1953 State budget report, total sales of the State trading organization in 1952 totaled 158,000 tons of paper; probably including imports.

Paper production is estimated to have averaged 155,000 tons annually between 1950-1952 and consumption 210,000 tons including 90,000 tons of newsprint. Consumption by 1960-1962 is pegged at 500,000 tons, double that of 1952, of which 180,000 tons will be newsprint.

Newsprint production and exports in Communist China and North Korea is estimated as follows by the Canadian Newsprint Assn.:

#### RED CHINA-NEWSPRINT

	Production	Exports	Imports
1939	0	0	68,305
1953	100,000	0	30,000
1954	110,000	5,000	40,000
1955	125,000	30,000	50,000
1956	130,000	30,000	50,000

Shanghai is the dominant papermaking center in China. Here, before World War II, a few small mills comprised the major portion of the Chinese paper industry, producing almost one-third of domestic needs. Japan, U.S.A. and Europe supplied the rest.

China's latest population census is 601,000,000, about 137,500,000 more than the 1948 census. China proper · Correspondents in over 50 nations or territories around the world sent these reports to the unique 1956 WORLD REVIEW NUMBER of PULP & PAPER.

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#### BURMA

#### U.S. Tractors Replace Elephants; Bamboo Mill Still "Alive"

Population: 19,045,000. Per capita use of paper: 1.3 lbs. Production: 1,000 tons.

Rangoon American-built logging tractors, bulldozers, diesel trucks, loading hoists and power saws have been put to use in this country in a "timber extraction" operation during 1955 and 1956. This is significant news. It means that the days of the use of the elephant in this country for this type of forestry work may be numbered. Dr. Karl Miedler of Germany headed the project.

Bamboo rather than forests is of interest for pulp and paper as in most southeast Asiatic countries. Plans for a 100 ton or 150 ton per day bamboo pulp and paper mill near the seaport of Akyab, Burma, are still alive.

Burma has no pulp mills and this would serve only domestic needs. Selfsustaining fast-growing bamboo would sustain it-and more mills, too, for that

Robert Hattis, Engineers, of Chicago, have extensive plans for the development.

Harold Murdock, of Atlanta, Ga., U.S.A., former research director of Champion Paper & Fibre Co., who went to Akyab and Burma two years ago to look over the project is very 'high" on it. He is most enthused about bamboo as a fast growing raw material, not only in Burma, but elsewhere in Southeast Asia. After the war, he was rehabilitation chief for the entire Japanese pulp and paper industry.

#### THAILAND

#### Much Bamboo and Many Trees But Only Two Mills

Population: 19,556,000. Per capita use of paper: 2.2 lbs. Paper mills: 2. Bamboo pulp mill: 1.
Paper production: 4,000 tons. Bamboo pulp production: 3,000 tons.

Untouched stands of forests cover 70% of this nation where a past king and an English schoolmarm have been made famous in a romantic play and

At Kanburi, 75 miles west of Bangkok, is a bamboo pulp and paper mill making about 3,000 tons a year. Last reports were it might be enlarged to at least double that size. A wastepaper utilizing mill in Bangkok makes printing papers.

Bamboo is a great potential in this country for quality pulp and paper.

#### REST OF ASIA

INDONESIA-Population, 77,000,000. Per capita use of paper-3.5 lbs. Produc-tion: 7,000 tons.

tion: 7,000 tons.

CAMBODIA—LAOS—VIET NAM—
Population, 30,000,000. Per capita use of
paper, 2 lbs. Production—3,000 tons.

IRAO—Population, 5,300,000. Per capita use of paper, 2.2 lbs.. Paper imports—
6,000 tons.

CEYLON—Population, 8,200,000. Per capita use of paper—3 lbs. Production,
1,000 tons.

OTHER ASIATIC COUNTRIES— Population, about 150,000,000 more. Per capita use—3 to 4 lbs.

There are many other nations in Asia from Saudi-Arabia to Indonesia and from Ceylon to Afghanistan, on which not enough news was available to describe them in separate sections for this REVIEW NUMBER. Their per capita consumption is the world's lowest. Their mills are medieval in most cases.

However, last reports from Ceylon were that it was building a new paper

In Indonesia, two small mills are using rice straw and adding to its about 3,000 tons of imported pulp. Result: About 7,000 tons a year of pretty good writing paper. Tropical rain forests, hardwoods and fast growing conifers, as well as bamboo, are abundant.

#### HONG KONG

Both Imports and Exports Rise Sharply in Hub of Orient

Population 2,260,000; Per capita paper consumption: 41.5 lbs.

	1954	1955
Paper Imports	73,373	95,049
Paper Exports	29,087	38,669
Paper Consumption	44,286	56,373
Principal papers exports		Korea

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Burma has no pulp mills and this would serve only domestic needs. Selfsustaining fast-growing bamboo would sustain it-and more mills, too, for that

Robert Hattis, Engineers, of Chicago, have extensive plans for the development.

Harold Murdock, of Atlanta, Ga., U.S.A., former research director of Champion Paper & Fibre Co., who went to Akyab and Burma two years ago to look over the project is very 'high" on it. He is most enthused about bamboo as a fast growing raw material, not only in Burma, but elsewhere in Southeast Asia. After the war, he was rehabilitation chief for the entire Japanese pulp and paper industry.

#### **THAILAND**

#### Much Bamboo and Many Trees But Only Two Mills

Population: 19,556,000. Per capita use of paper: 2.2 lbs. Paper mills: 2. Bamboo pulp mill: 1. Paper production: 4,000 tons Bamboo pulp production: 3,000 tons.

Untouched stands of forests cover 70% of this nation where a past king and an English schoolmarm have been made famous in a romantic play and

At Kanburi, 75 miles west of Bangkok, is a bamboo pulp and paper mill making about 3,000 tons a year. Last reports were it might be enlarged to at least double that size. A wastepaper utilizing mill in Bangkok makes printing papers.

Bamboo is a great potential in this country for quality pulp and paper.

#### REST OF ASIA

INDONESIA-Population, 77,000,000. Per capita use of paper-3.5 lbs. Produc-tion: 7,000 tons.

CAMBODIA-LAOS-VIET CAMBODIA – LAOS – VIET NAM – Population, 30,000,000. Per capita use of paper, 2 lbs. Production—3,000 tons. IRAQ—Population, 5,300,000. Per capita use of paper, 2.2 lbs.. Paper imports—6,000 tons. CEYLON—Population, 8,200,000. Per capita use of paper—3 lbs. Production, 1,000 tons.

OTHER ASIATIC COUNTRIES— Population, about 150,000,000 more. Per capita use—3 to 4 lbs.

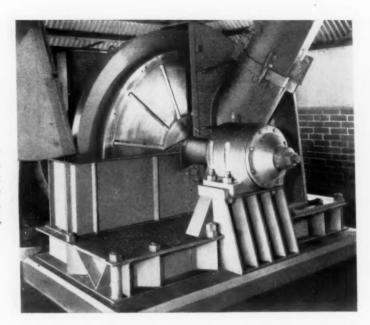
There are many other nations in Asia from Saudi-Arabia to Indonesia and from Ceylon to Afghanistan, on which not enough news was available to describe them in separate sections for this REVIEW NUMBER. Their per capita consumption is the world's lowest. Their mills are medieval in most cases.

However, last reports from Ceylon were that it was building a new paper mill.

In Indonesia, two small mills are using rice straw and adding to its about 3,000 tons of imported pulp. Result: About 7,000 tons a year of pretty good writing paper. Tropical rain forests, hardwoods and fast growing conifers, as well as bamboo, are abundant.

#### ... Produce Uniform High-Quality Chips

The Carthage-Norman Chipper, with its helicoidal knife bevel and disc segments, produces a clean cut at every point along the edge of every knife—no gouging or tearing. You get maximum useable chips—with minimum bruising, minimum fines, minimum re-chipping.



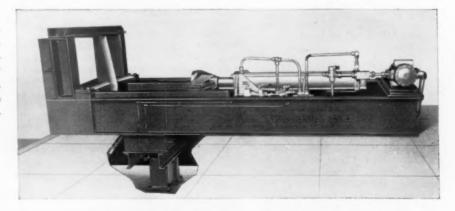


## ...Bark Logs with Minimum Brooming

The smooth construction of the Carthage Barking Drum removes the bark while holding brooming to the very minimum. Massive heavy-duty construction means long service life and low maintenance costs.

#### ... Quarter Logs with One Stroke

In successful use since 1950, the Carthage Hydraulic Log Splitter handles logs 24", 30" and 38" in diameter and from 4 ft. to 8 ft. 6 in. in length. The ideal answer to your largewood problem.



## CARTHAGE MACHINE COMPANY

CARTHAGE, NEW YORK



Here's an up-in-the-air view of the new multi-million-dollar Adrian Joyce Works, Baltimore, Maryland. This modern titanium dioxide processing plant represents the first step in a broad expansion program designed to provide better service for the many users of Glidden ZOPAQUE Titanium Dioxide.

Glidden ZOPAQUE Titanium Dioxide is the finest, whitest white pigment available for use in rubber, plastics, paint, paper, ceramics and other products. Glidden research has achieved greater whiteness and an accelerated dispersion rate in new ZOPAQUE. These developments combine to produce pigments with outstanding gloss and color retention as well as low reactivity.

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Chemicals—Pigments—Metals Division

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#### LATIN AMERICA

#### BRAZIL

#### Major Pulp Development Likely As Import Problems Grow

Population: 57,350,000; Per capita paper

consumption: 19 lbs.
Paper mills: 61. Woodpulp mills: 16
Straw mills: 2

Production (short tor	is) 1954	°1955
Paper	379,000	385,000
Chemical woodpulp	91,000	98,000
Groundwood	110,000	110,000
Paper Imports	135,000	132,000
Woodpulp Imports	196,238	133,000
Principal pulp imp Sweden, Canada, U.S *Estimates		Finland

Rio de Janeiro

Brazil has a peculiar production problem which may shortly be overcome-it has an abundance of paper mills and hardly any pulp operations. As a consequence, most of the paper made in this country is produced from imported pulp. There is no shortage of wood-Brazil's wild and uncultivated forest lands could support an industry up to four times its present 385,000 short tons production, say Brazilian authorities. But the nation is short on technicians and on processes for converting some of its tropical fibers into pulp.

Carlos Benko, editor of the magazine "O Papel" and also manager of a Brazilian paper mill, writes to PULP & PAPER: "I believe that in the near future production of pulp and paper from bagasse and eucalyptus in Brazil will be considerable. We are presently working toward industrial possibilities."

This theory is also supported by Dr. L. J. Rys, industrial consultant, who has been closely identified with Industrias Klabin do Parana de Celulose, a major pulp and paper in-dustry hewn out of Brazil's rugged jungles, in the by-lined article that follows.

Meanwhile, the industry here continues to move ahead. Copase (Companhia Paulosta de Cellulose) at latest reports, was building a \$10 million sulfate pulp and paper mill at Rio Clare in Sao Paulo, designed to use eucalyptus.

#### Brazil's Problems and Potentials By DR. L. J. RYS Industrial Consultant

Sao Paulo

Of 61 paper mills in Brazil, only a few have their own pulp or groundwood mills. Because of transportation problems, many of these mills are located directly in towns or in suburbs. All of them are using imported pulp, although some mills are now mixing it with some pulp made in the country. Domestic pulp is only slightly cheaper than foreign and is sold by quota. At the same time, because import difficulties, there is a limited supply of import pulp.

As a consequence, all Brazilian paper mills are trying to finance pulp mills of their own and are seeking new types of raw materials to be used in the manufacture of pulp. It appears likely that Brazil will soon have many sulfate mills in operation, most of them without recovery systems. Papermakers have determined that making pulp, even without recovery, will still be about 50% cheaper than pulp they are buying. At present there is no problem with water pollution here.

It is also expected that there will be some parallel development in semichemical pulping using bagasse and eucalyptus as a starter.

This activity will, of course, help only to a certain extent to substitute the pulp import of today, which is 132,000 tons a year. The trouble in Brazil is, although there is much wood in the country, only a little is



BLEACHED BAGASSE IS MADE AT THIS MILL at Sao Paulo, Brazil, owned by Refinadora Paulista, S.A. Fine papers are made from bagasse pulp produced in this mill. Import problems will probably force Brazilian industry to produce more pulp and seek new processes for using abundant and varied types of wood.

#### BRAZIL-WOODPULP

	Pro	duced	Im	ports
	Chemi-	Ground- wood	Chemi-	Ground-
1950	50	44	145	12
1951	80	110	143	0
1952	80	110	110	0
1953	81	110	107	0
1954	91	110	188	8.5
1955	98	110	133	-

#### BRAZIL-PAPER

(in thousands of short tons)

	(									 Paper		
										Produced	Imports	
1938		4								117	55	
1947										188	93	
1950										275	75	
1951							0			269	58	
1952										313	60	
1953				۰					0	330	123	
1954										379	135	
1955										385	132	

available for pulp making on a large economic scale. We may divide the available fiber making material for new mills in Brazil in following main groups:

Paraná pine-This is the only longfibered wood suitable for sulfite and sulfate. There are still two big islands of this material, one in S. Catarina on the border of Paraná State, the other in southwest Paraná State. In both places the wood belongs to many proprietors. In both places, power has to be developed, and the second needs complete civilization and transport development.

Eucalyptus-Plenty of this wood was planted near cities as fuel for domestic use and railroads. It is now free. Because this wood grows practically everywhere, has no disease, can be cut in 6-7 years and re-grows three times without planting, it will be one of the very important raw materials for paper in the near future. The price will very likely go up with the increased consumption. Eucalyptus can be cooked best with sulfate, giving pulp strength similar to the imported sulfite and can be used even for rayon

Acacia negra-is planted in quantities in Rio Grande do Sul for tannin extracted from the bark. The existing quantity may support about a 220ton-a-day mill. The quality of the wood is similar to eucalyptus, with more pentosans.

Bagasse - is already used for bleached pulp (Pomilio method) and for board and corrugated paper. There is still plenty available.

Straw-is used locally, especially rice straw in Sao Paulo and South

Mixed hardwood - from virgin forest. We may still have to wait for utilization of this wood in Brazil for



FAITH IN BRAZIL—A U.S.A. FIRM'S INVESTMENT. This is a new air view of Rigesa, S.A., at Valinhos, Brazil, owned by West Virginia Pulp and Paper Co., New York City, U.S.A. Considerable new equipment has been installed. An experimental timber project has been launched. Production is already up 50%.

some time. The lack of heavy mechanical equipment and transportation, climate and other difficulties are discouraging large scale investment. It seems to be more economical to plant the eucalyptus for the new mill than to go to the wilderness.

The main trend in utilization of hardwood and bagasse today is the manufacture of high-priced writing paper, which, of course, may bring an over-production of this kind of paper. The manufacturing of book, printing and newsprint papers is held back by existing duty-free import at official exchange. So it is possible that a wood free printing paper is cheaper than imported bleached pulp. The same situation is prohibitive for further increase of newsprint production. Brazil is importing today over 100,000 tons a year while domestic production is 30,000 tons a year. It can meet import prices with artificial financial help only.

There is a technical problem too, namely where to get 100,000 tons a vear of long fibered groundwood. The most logical way will be to build newsprint mills in the Paraná-pine districts mentioned above. A combination of such a mill with kraft pulp

would be very interesting.

The other, and a little more complicated, possibility is to start with eucalyptus again, using some of the newly developed methods for chemigroundwood where wood logs or chips are partly cooked before defibration. These new methods mayafter necessary technical adjustments -bring the solution, but the paper will very likely be more expensive than imported.

At present, the use of bagasse for newsprint does not appear very promising. The one U.S.A. mill, built specially for it, is making writing

paper only.

Missing entirely in the Brazilian picture is an educational institution for training technicians. The Brazilian "Senai" (Service National de Aprendizagem Industrial) is now organizing educational courses for mill personnel (machinetenders, etc.,) but there is no training facility for highly specialized technical men. Brazil needs a good pulp and paper institute to develop young technicians and for intensive studies of special wood problems.

#### BRAZIL-PULP IMPORTS (in short tons)

	Bleached	Unbleached	Bleached	Unbleached			
1953	Sulfite	Sulfite	Kraft	Kraft	Rayon G	roundwood	Total
Sweden	25,682	12,458	16,665	26,371	16,507	79	97,763
Finland	4,531	7,272	-	1,973	2,976	-	16,763
Norway	886		-	-			886
U.S.A.	602	distant.	_	157	417	-	1,176
Canada	_	(comment)	-		191	_	191
Total	31,701	19,730	16,665	28,502	20,093	79	116,769
Percent	27.15%	16.90%	14.27%	24.41%	17.21%	0.06%	100%
1954							
Sweden	22,471		16,156	23,247	15,631	232	95,279
Finland	9,657		-	14,917		7,024	61,119
Norway	6,344		445		137	_	8,097
U.S.A.	3,302		2,976	8,880	4,895	1,279	21,331
Canada	8,693		439	123	2,015		11,402
Total	50,467		20,015	47,618	22,679	8,535	197,200
Percent	25.59%	24.28%	10.15%	24.15%	11.50%	4.33%	100%
1955	0 100	1 710	E 000	10 501	0.040		00 400
Sweden	8,190		5,380		6,646	-	32,460
Finland,	19,162		9,269 380		12,133		86,783
Norway	7,896		68		2,455		11,455
U.S.A.		_			1,626	_	2,311
Canada	62		15.097	04 700	22 200	_	62
Total	35,310 26.53%		11.35%		22,860 17.18%	_	133,071 100%
Percent	20.557	10.00 /0	11.00 /	20.0076	11.1070		10070

How U.S.-Owned Mill Has Improved and Expanded

By JOHN D. WHEELER

Director and General Manager, Rigesa S.A.

Valinhos

Rigesa S/A, which has been operated as a wholly-owned subsidiary of West Virginia Pulp and Paper Co. since early 1953, manufacturers pulp,





DR. LADISLAV JOSEF RHYS (left), builder and engineer for new and modernized mills in Czechoslovakia and Rumania, now a consulting engineer for pulp and paper in Sao Paulo, Brazil, again comments on the Brazilian industry outlook. JOHN WHEELER (right) sends report on West Virginia Pulp and Paper subsidiary in Brazil. He was former operations and technical supervisor in its mills in Southern U.S.A.

paper, corrugated products, and gummed tapes at its plant at Valinhos, 55 miles northwest of the city of São Paulo. An experimental timberland operation has recently been started in the northern part of the State of Santa Catarina, approximately 430 miles southwest of the city of São Paulo in the heart of south Brazil's Paraná pine stands.

At the Valinhos plant, bagasse pulp and paperboard production is wholly converted to corrugated products, which are marketed jointly with tape products through sales offices in São Paulo, Rio de Janeiro, Porto Alegre, and Belo Horizonte. Sales agents are employed in other principal sales areas throughout the country.

Rigesa employs approximately 450 of which only four are Americans from the parent company who function as general manager, production manager, timber research manager and comptroller.

FAITH IN BRAZIL . . . The operating philosophy at Rigesa reflects a fundamental belief that Brazil in general and the Brazilian paper industry in particular have an excellent, if sometimes erratic, future potential. Rigesa has, therefore, in its three years of operation as a West Virginia subsidiary, been concentrating on expanding and modernizing plant facilities, improving marketing techniques, and developing depth and quality of personnel.

Equipment and improvements valued at 25,000,000 cruzeiro dollars (\$3,100,000 U.S.) were installed in 1955, while present plans are for approximately double this amount to be installed in 1956. These expenditures are being financed from earnings (all of which have been re-invested to date), depreciation funds, working capital, and capital equipment im-

portations from the parent company.

In the last 12 months the first package testing laboratory in South America has been built, the largest and most modern tape making machine in South America has been installed, and property has been purchased and operations begun on an experimental timber project.

Personnel and operating methods are being strengthened by the hiring of technical trainees, providing training periods in U.S., plants for various key personnel, and by short term tours of duty with Rigesa by stateside specialists from the parent company and its box-making subsidiary, Hinde & Dauch.

Progress is reflected in increased output of approximately 50% during the past two years.

## ARGENTINA Paper Output Nearly Doubled But Newsprint Still Critical

Population: 19,294,000; Per capita paper consumption: 44 lbs.

Paper mills: 48; Woodpulp mills: 3; Straw mills: 3.

Production (short ton	s) 1954	1955
Paper	251,511	550,000
Chemical woodpulp	43,689	55,000
Mechanical woodpulp	14,274	33,000
Paper imports	70,770	89,200
Woodpulp imports	186,797	165,000

Principal paper imports from: Finland, Sweden, Norway.

Principal woodpulp imports from: Finland, Sweden, U.S.A.





CARLOS BENKO (left), Editor of "O Papel" Magazine and a paper mill manager in Brazil, sees major pulp industry development imminent in his country, using bagasse and eucalyptus.

SILVIO GAGLIARDI (right), President, Director and Manager of Celulosa Argentina, which has two mills in Argentina producing straw, bamboo and pine pulp as well as several grades of papers. He heads the largest paper company in Argentina.

#### By JORGE EDUARDO DHIOS

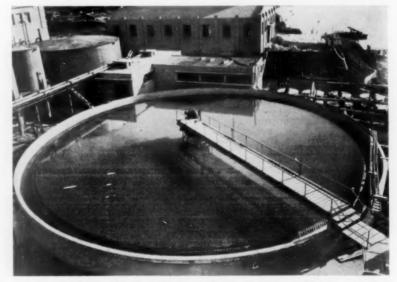
Administrator, Francisco Lera Co. (Financial House), Buenos Aires

**Buenos Aires** 

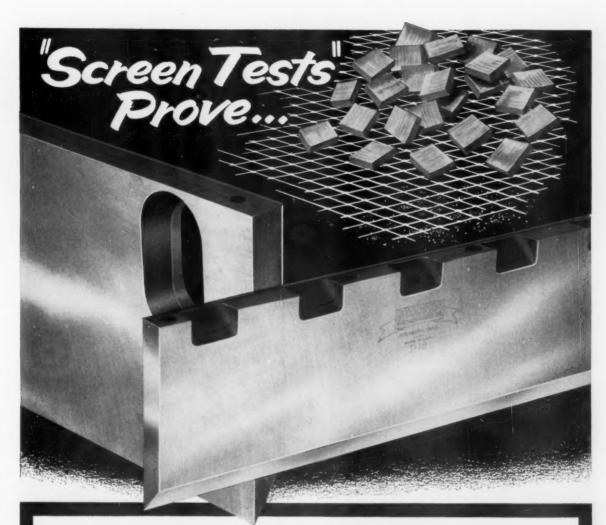
Important political events in 1955 absorbed public attention in Argentina and explain the following unusual situations in the consumption of newsprint.

Until the Revolution of Liberation (overthrow of Peron) on Sept. 16, the consumption of paper had proceeded at a normal pace within strict restrictions that had gradually been introduced for more than 10 years.

The revolution over, an increased consumption of newsprint was authorized. Within a short time, however,



CLARIFIES RIVER WATER FOR ARGENTINA MILL. Juan Ortiz Mill of Celulosa Argentina, 200 miles above Buenos Aires on Parana River, is South America's biggest alkaline process pulp-paper mill (33,000 tons of straw pulp, 9,000 of bamboo pulp, 7,000 of pine pulp and 9,000 of book and fine papers daily). This is one of two 90 ft. Dorr Hydro-Treators removing turbidity and color from 25 mgd of river water.



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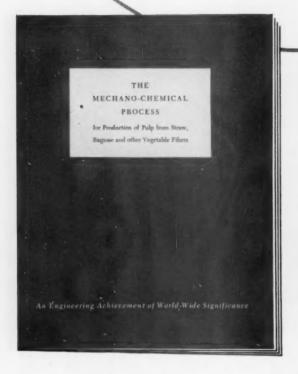
which causes bruised chips and excess dust.

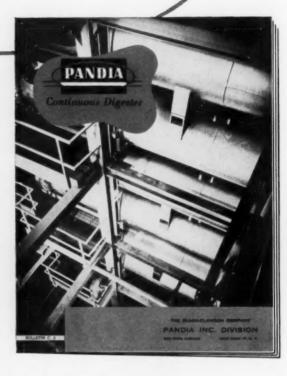
Put Simonds T-18 Knives on the job and *your* screen tests will show more and better chips, less dust, LOWER COST CUTTING.



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it was necessary to restore restrictions due to a lack of paper reserves. Political upheaval also delayed the approval of import licenses, endangering the scanty backlog Argentina had at its disposal. Understanding the problem, the new government immediately sought a solution, granting a more ample and a stronger currency standard for the import of newsprint.

It was impossible to immediately increase imports to any considerable extent for two reasons: First, it was imperative to import articles of primary necessity; second, because of the world shortage, we were obliged to pay a higher price in order to get immediate shipments. As a result, newsprint had to be rationed. We believe this is only a temporary problem and will exist until the government can maintain a policy of economy in the consumption of paper which will solve the problem and normalize imports into an even and adequate flow.

Production of newsprint, meanwhile, continued at about the same rate as last year—about 20,000 tons a year. We are planning the installation of several new plants based on the production and utilization of local raw materials such as sugar cane pulp, wheat straw and types of wood previously thought useless in papermaking. These plants hope to obtain great results if given a reduction in the cost of materials used.

SELF-SUFFICIENCY GOAL — Self sufficiency in pulp and paper, which PULP & PAPER reported last year

#### ARGENTINA—PAPER BOARD AND BOARD

1949

1950 1952

1953

1954

	(in sh	ort tons)	
	Imports	Production	Total
)	240,836	195,565	436,401
)	211,949	232,548	444.497
2	178,509	220,006	398,515
3	37,025	191,925	228,950
1	11.550	64.501	76.051

75,200

89,200

#### ARGENTINA-WOODPULP

14,000

P31	OFIGURA	-110001	OLI
	(in s)	hort tons)	
	Imports	Production	Total
1949	76,519	38,191	114,710
1951	141,622	45,295	186 917
1952	94,979	41,628	136,607
1953	39,173	43,390	82,563
1954	186,797	58,230	245,028
1955	165,000	88 000	253 000

#### ARGENTINA-NEWSPRINT

		mr Or	
	(in	short	tons)
1949			112,012
1950			104,621
1951			117,082
1952			95,484
1953			30,776
1954			54,241
1955			55,200

was the goal of Argentina's second five-year plan ending in 1957, was temporarily stymied by the revolution which deposed Peron. Although 8 or 10 more pulp mills are projected, the political upheaval stagnated plans for a good part of 1955.

In general, however, the production of paper and pulp has picked up. By the end of the year, Argentina had produced almost twice as much paper as in 1954–550,000 short tons as compared to 251,511 tons. Mechanical woodpulp was up to 33,000 from 14,274 in 1954 and woodpulp imports were about 20,000 tons a year lower.

The Buenos Aires government, eager to promote its domestic industry, sought the assistance of Japan this year. From Japan comes news that the Paper Pulp Federation is pushing plans to establish a paper and pulp firm in Argentina, working jointly with Argentina's government.

#### CHILE Plan 8 New Mills by 1970;

Production: 800,000 Tons

Population: 6,000,000; Per capita paper consumption: 26 lbs. Paper mills: 4, Paperboard mills: 22

Production (short tons)	1954	1955
Paper Mechanical woodpulp Straw pulp	57,187 20,833 3,575	60,627 19,630 2,428
Newsprint imports Other paper imports	13,845 33,535	15,364
Principal pulp imports Finland, U. S., Canada	from:	Sweden,
Principal paper imports	from: U	S SWP-

den, Canada

#### Santiago

A major expansion of the Chilean pulp and paper industry made big news here this year. Announced by the Chilean Development Corp., a government body, this growth will include eight mills with a total production of 800,000 tons, expected to be in operation by 1970. There have been estimates that about 80% of this production will be available for export. Plans for the first two mills are already underway and some \$20 million will be spent on this initial project.

#### CHILE—PULP PRODUCTION

(in thousands of short tons)

	Mechanical Pulp	Straw Pulp
1949	14.3	6.0
1950	16.9	4.9
1951	17.1	5.2
1952	19.0	4.1
1953	16.2	4.8
1954	20.8	3.6
1955	19.6	2.4

At present, Chile's major paper producer, Cia. Manufacturera de Papeles y Cartones S.A., produces almost 100% of Chile's paper. Last year the firm built an integrated groundwood and newsprint mill which produces some 40,000 tons and 44,000 tons respectively. Augmenting this production, the company this year embarked on an even more ambitious program. Under construction at present is a 60,500 short tons a year paper mill and a cellulose pulp mill designed to produce upwards of 75,-000 short tons. The paper mill is expected to be producing by the end of 1956 with the pulp mill slated to operate by the end of next year.

The new paper mill, which will use insignis pine, will produce about three times as much kraft pulp as it will kraft paper. It is located at Laja. The newsprint mill is at San Pedro near the Bio-Bio River.

#### TWO POSSIBLE LOCATIONS . . .

Although it has not been announced, it seems fairly safe to assume that the major expansion program backed by the Chilean Development Corp. will be located in Chile's far-flung 250,000 acres of insignis pine, a tree native to the Western U.S.A. and planted in Chile as early as 1916.

Since the present demand on this forest for fiberboard, posts and small dimension lumber, is draining the supply, some of this construction will probably be located near the natural forests of Valdivia, which reportedly could support a 250,000 ton chemical pulp expansion or 420,000 tons of semi-chemical. Cia Manufacturera de Papeles y Cartones S. A. now operates a small (2,000 tons) mill here.

Chile now supports four paper mills and about 22 small paperboard mills. Annual consumption, including the new kraft mill, is about 70,000 tons of paper and board, including 17,000 tons of newsprint. Domestic

#### CHILE—PRODUCTION—IMPORTS—CONSUMPTION

(in thousands of short tons)

				-,	
	Pro	duction	In	Total	
	Newsprint	Other Papers	Newsprint	Other Papers	Consumption
1949	9.	37.7	15.4	3.3	65.5
1950	12.1	34.7	21.5	1.7	70.1
1951	12.1	36.3	14.0	1.8	64.4
1952	12.8	36.1	11.0	1.8	61.8
1953	10.3	42.1	14.6	1.6	68.7
1954	13.6	43.7	12.7	1.1	72.8
1955	12.7	47.9	15.4	2.1	78.1



#### LATIN AMERICA

production consumes about 46% of the newsprint and 95% of all other grades.

In a letter to PULP & PAPER, Sr. Francisco Schnake S., sales manager of Compania Manufacturera de Papeles y Cartones, S.A., reported on expansion which will increase its production considerably by 1956. It is building a paper mill of about 60,000 short tons capacity a year and a new pulp mill of 77,000 short tons.

#### **MEXICO**

#### Here's Complete Report on All New Mexican Expansion

Population: 30,000,000. Per capita paper consumption: 20.1 lbs. Paper and board mills: 30. Pulp mills: chemical wood, 3; groundwood, 6; straw or other fiber, 3.

Production (in short tons) 1954 1955 Paper and paperboard 207,000 Chemical woodpulp 58,000 274,000 100,000 Groundwood Straw, other fiber 35,000 35,000 3,000 13,000 Imports—paper, board Imports—woodpulp 34,000 44,000 46,000 Principal paper grades made: Kraft and sulfite papers, book and writing, board. Principal paper imports from: U.S.A., Canada, Finland. Principal pulp imports from: U.S.A., Sweden, Finland, Canada.

#### By CARLOS GARCÍA ROBLES Pulp and Paper Mill Engineer

Mexico City
There has been a considerable
increase in paper consumption in Mexico (301,000 short tons, an increase
of 25% during 1955). All mills are
working at capacity and many are
well behind orders. A few are working
7 days a week and many others,
through efficient methods and various
improvements, have increased their
productive capacity.

About 15 new paper machines are to be installed in Mexico in 1956-57.

The rise in consumption has been due namely to the tremendous increase in the industrialization of Mexico during recent years. After our 1954 devaluation of currency, which of course, created quite a disturbance for some time, economic conditions of our country have reached an unprecedented stage, creating quite a stir in foreign financial circles. You will understand that fundamentally our country is still poor and there are









UNITED STATES COS. INVEST IN MEXICO'S INDUSTRY. (Left to right) PHIL BACHELDER, former Kimberly-Clarker in U.S. where his last post was at Coosa River Newsprint Co., is General Mgr. and also Project Mgr. for K-C's new holdings—the two "La Aurora" S.A. mills in Mexico. JULIO COLON, an excellent linguist as well as Manager of the older "La Aurora" mill in Mexico City, which continues to make fine papers. The new one under K-C staffers from U.S.A. will have a new tissue machine. DR. ROY L. DAVIS, Acting Vice President and Treasurer, representing Scott Paper Co.'s association in Cia. Industrial de San Cristobal, S.A., which is installing a second machine for Scott products. Dr. Davis was Manager of the Detroit Sulphite division of Scott. MITCHELL THOM has returned to Mexico City as Manager of the operations of the new Empaques de Carton, United, S.A. mill.' He was former Supt. at Syndey Roofing & Paper Co., Victoria, B.C., and was born in North Dakota.

many, many things to be done yet, but I believe, after many years of struggle, we are heading in the right direction.

Regarding news at the different mills:

La Aurora, S.A. de C.V.-Kimberly-Clark Corp. (U.S.A.) purchased, in association with Messrs. Jerónimo Arango (textile mill owners), the entire holdings of Fábrica de Papel La Aurora, S.A. Phil Bachelder from Coosa River Newsprint Co. (U.S.A.), operated by K-C, is managing the new company assisted by Julio Colón, of the old management and manager of the old mill in Mexico City, and Peter Heintskill, from U.S.A. and manager in charge of the new tissue machine mill, which is being installed at the new site of the San Bartolo Naucalpan Mill. The old mill at Fernando de Alva Ixtlixochitl will con-



CARLOS GARCIA ROBLES (left), Mexico City consulting and construction engineer and representative of pulp and paper equipment and supply firms, has given PULP & PAPER readers an unusual complete report on all mills, expanding or new, in Mexico.

PAULINO ORTIZ (right), 24-year-old nephew, who with another relative of the late Thomas Mier, now heads the Coyoacan Paper Co., south of Mexico City, and one of the major paper companies in the country. It built and owns the new El Pilar bagasse pulp mill.

tinue making fine papers as in the past.

Cia. Industrial de Atenquique, S.A.—This mill suffered a heavy flood during Oct. 1955, causing suspension of all activities until Jan. 1956 when operations were resumed. The flood which came very suddenly, 'caused about 18 deaths and the entire buildings and huts at side of the small river were swept away including the public restaurant, post office, church, etc. Actually the mill itself suffered flooding of the (120 in. Black-Clawson Four-drinier) paper machine basement and

#### MEXICO—PAPER CONSUMED

(in thousands of short tons)

	Prin (no	ting*   news)	Writing Co	oarse Wr	Tissue ap	Paper (	
194	8	20	23	59	7	47	165
194	9	19	27	60	8	49	171
195	0	25	32	75	12	54	209
195	1	29	36	78	16	57	226
195	2	29	33	76	15	63	230
195	3	30	35	79	18	68	240
195	4	28	38	80	22	71	240
195	5	32	45	106	22	92	301
	Me		as importually in				tons of

#### MEXICO-PAPER PRODUCED

(in thousands of short tons

Pr ()	inting*	Writing	Coarse	Tissu		Total (Includes others)
1948	1.7	20	54	4	44	147
1949	18	23	58	5	49	156
1950	22	25	52	4	45	150
1951	27	35	77	13	56	217
1952	25	30	70	2	60	198
1953	26	31	75	0	63	201
1954	2.3	3.3	78	2	67	207
1955	31	43	105	3	90	274
* T	here is	no new	sprint	made i	n Mexic	0,

#### MEXICO-WOODPULP

 (in short tons)

 1937
 Produced
 Imported

 1946
 27,010
 1947
 56,314

 1948
 78,880
 32,933

 1949
 71,500
 45,000

 1950
 77,000
 56,500

 1951
 94,000
 56,000

 1952
 90,000
 60,000

 1953
 92,000
 54,000

 1954
 96,000
 40,000

 1954
 96,000
 40,000

 1954
 96,000
 40,000



HYDRAULIC-OPERATED Yarway Digester Blow Valve—one of six installed at large North Carolina paper mill.



MOTOR-OPERATED Yarway Digester Blow Valve—one of eight installed at large Canadian paper mill.

Scores of pulp mills report lower operating costs and increased production due to Yarway Digester Blow Valves. One large mill found savings in operation and maintenance the first year more than paid the cost of their 4 new Digester Valves!

Yarway Seatless Digester Valves can be furnished

The hollow sliding plunger of the valve has no pockets where wood chips or tramp materials can

Full pipe area permits fast discharge with minimum

YARWAY Seatless Digester Valves can be furnished either with electric motor or hydraulic cylinder units. Both are remote controlled. Bulletin B-441 gives the whole story. Write for it.

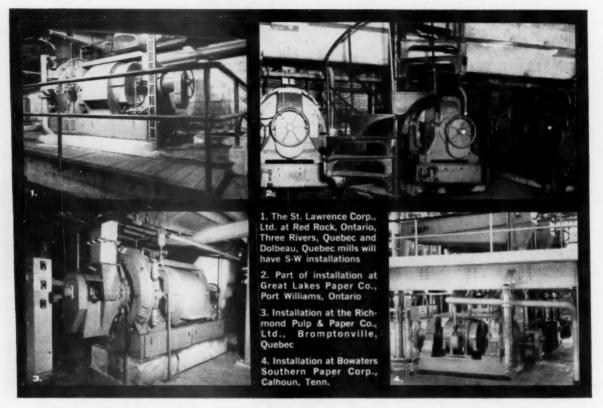
YARNALL-WARING COMPANY

103 Mermaid Avenue, Philadelphia 19, Pa. Branch Offices in Principal Cities



· DIGESTER BLOW VALVES

for groundwood rejects refining...



more and more mills are turning to

#### **SPROUT-WALDRON 36-2 REFINERS**

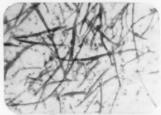
Such mills as the ones illustrated plus Fiberboard Products, Inc., Port Angeles, Wash., The Gould Paper Co., Lyons Falls, N.Y., and The Ontario-Minnesota Pulp & Paper Co., Ltd., Kenora, Ontario are only a few of the mills using Sprout-Waldron single rotating disc refiners to produce quality pulp from groundwood rejects.

THE REASONS: Strong Clean Refined Fiber...

Economical Power Requirement... High Capacity...

and Low Maintenance.

For mill reports on Sprout-Waldron groundwood rejects refining installations, ask for our file. Write to Sprout, Waldron & Co., Inc., 32 Logan St., Muncy, Pa.



Northern Spruce fine scree rejects. S-W refined.



screen rejects. S-W refined

SW

SPROUT-WALDRON

PULP MILL EQUIPMENT

PP/421

1956 Review Number-PULP & PAPER

mill yard, leaving behind a layer of sand which at some places reached a height of 13 ft.

Atenquique is contemplating a power plant expansion and several pulp mill additions.

José Angel Ceniceros, since he became in 1953 Minister of Education in the cabinet of President Ruiz Cortinez, was replaced by Efrain Buenrostro as general director of Antenquique. Felipe Ceniceros is still general manager and W. W. Bryant, from the Southern Kraft industry in U.S.A., is general superintendent.

Aserraderos González Ugarte, S.A.-Plans for a groundwood and newsprint mill are still under consideration and Jorge R. Roldan, head of its Pulp and Paper Department, returned from Europe last January after a fruitful trip of over a year, in connection with this project.

Adamas, S.A.-This is a new company with Mexican and Italian capital and is headed by Gastón Sonini as general director and Eugenio Paolo Butturini as assistant technical director.

The mill will be about 15 miles northwest of Mexico City, near Tlalnepantla, where Westinghouse and many other industries are located, and construction work is well under way. This concern will make condenser and insulating papers and special boards and expects to start operations late in 1956.

Fábrica de Papel Coyoacan, S.A.-Luis Lombó, head of this company since the death of Thomas Mier in 1955, has resigned due to health. Coyoacan, Mexico's third biggest mill, is now headed by Mr. Mier's 24-yearold rephew, Paulino Ortíz and Pedro Mier, nephew-in-law of the elder Mier. They are contemplating purchase of another paper machine to be installed at the new subsidiary, El Pilar Pulo Mill.

Fábrica de Celulosa "El Pilar," S.A.-This mill was completed by the end of 1954 and is now under normal operating conditions, using 100% bagasse for making a very fine fully bleached pulp, used entirely in Coyoacan's own paper manufacturing. Erection of machinery was under supervision of Alejandro Purón, manager. I was in charge of construction and civil engi-

neering work.

Celulosa de Chihuahua, S.A.-This new company has started producing pulp at Anahuc, Chih., from Mexican Ponderosa pine, manufacturing several grades including unbleached, semibleached and fully bleached kraft for the paper industry. When working at full capacity, it will be able to produce about 45,000 short tons per year. They have already started selling pulp to the various paper mills. It has 4-



MAKES FINE BLEACHED PULP FROM BAGASSE IN MEXICO. This is a general view of Celulosa "El Pilar," after its first full year of operation. In foreground—offices, electrolytic plant, boiler house and mill shop. In back—bale storage, preliminary cleaning, pulp mill, wet lap machines and product storage. At upper left—storage of bagasse from sugar mill. C. GARCIA ROBLES was in charge of construction and civil engi-



FINAL SCREENING (left) in the Pilar mill, where a continuous caustic soda and bleaching process is used

SCREW PRESSES BEFORE CHLORINATOR TOWERS (right). The process developed by Umberto Pomilio, founder of Celulosa Argentina in Buenos Aires, is used in Mexico's Pilar mill.

stage Swenson (U.S.A.) washing equipment, a Babcock & Wilcox type boiler and 6 Swedish digesters (6500 cu. ft.-reportedly world's biggest).

El Fenix Paper Co.-A new suction press and a plain press section have been ordered and will be installed by the middle of 1956; also a new Fourdrinier section is being built with a longer wire and a new suction roll. A complete dryer section was furnished with new roller bearings which were installed in record time. The whole change was made during Easter Week shutdown.

Fabricas de Papal Pena Pobre-One of the two Lenz family mills, has started up a new bleach plant at Pena Pobre and will make about 100 tons a day of quality Kraft and groundwood grades.

Fábricas de Papel Tuxtenec, S.A.-This will be the first mill to start again the manufacturing of newsprint in Mexico. The installation will be in the state of Oaxaca, near the village of Tuxtepec. Parsons & Whittmore of New York has contracted the whole job and Messrs. Sandwell & Co. are consulting engineers. By the end of 1957 they will start production, the mill being designed for a total capacity of about 40,000 tons.

A similar project is being planned at Michoacan, and it is expected contracts will be let soon.

Fábrica de Papeles Faciales y Sanitarios, S.A.-This company, making sanitary papers, is changing its location. Construction on the new mill has started, on the Mexico-Texcoco road, about 20 miles west of Mexico City. Papelera y Cartonera "Los Reyes" S.A.-Papelera Nacional, S.A. and Cartonera Nacional, S.A., merged under this name. Indalecio Celorio is general manager, being assisted by José Carlos de la Macorra as assistant general manager. They are planning expansion and improvements to increase production.

Productora de Papel, S.A.-This mill at Monterrey is installing its second 80 in. machine, provided with a Yankee cylinder, to start production about July 1956. Owners are the Garza family and production manager is Stanley A. Wilkes, former U.S.A.

papermaker and supt.

Sonoco de México, S.A.-Headed by J. E. Webb, general manager, Sonoco is installing a second vat machine 136 in. wide, to start production about mid 1956. It has ordered six new



#### LATIN AMERICA

Series 31 Emerson jordans for stock preparation for kraft liner stock and folding box grades.

Cia. Industrial de San Cristóbal, S.A.-This company, headed by Dr. Dante S. Cusi, has associated itself with Scott Paper Co., with Dr. Roy L. Davis, formerly manager at Scott's Detroit mill as acting vice-president and treasurer. The mill is making paper out of sugar cane bagasse and they are planning to install a second paper machine.

Empaques de Cartón Titan, S.A.-There are reports that this mill at Monterrey has bought a new U.S.built paper machine.

Empaques de Cartón United, S.A.-This is the new name of the Cardboard Division of United Shoe & Leather Co. S.A. It is again headed by Mitchell W. Thom, former British Columbia supt. and is planning to buy another paper machine.

Pedro Candás-Mr. Candás, an old employe of Coyoacan Paper Mill, is starting a new paper mill, planning to make glassine and grease-proof papers, at the Mexico-Texcoco road, about 18 miles from Mexico City.

Gilberto Madrueño-Mr. Madrueño, also an old employe of Coyoacan, is installing a Fourdrinier machine, located besides Mr. Candás mill. They are planning to start operations during the second half of this year, and they will be making Kraft papers.

Vancouver (Wash., U.S.A.) Plywood Co. has acquired vast holdings in Chiapas, near the Guatemalan border, and plans a 100-ton neutral sulfite semi-chemical pulp mill. Herman Simpson, Seattle, U.S.A., is engineerin-charge

Sonoco, Productora de Papel, Adamas, La Aurora and San Cristóbal, are certain to start new machines during this vear.

#### **COLOMBIA**

Three New Mills Slated by '58 Will Double Production

Population: 12,000,000; Per capita paper consumption: 12 lbs. Paner mille. 1

A Copies of the		
	1954	1955
Paper production	25,000	36,400
Mechanical pulp imports		9,800
Chemical pulp imports	11,000	14,000
Principal paper and puly	p impor	ts from:
U.S., Canada, Sweden, F	inland.	Norway

Bogota

A revolution in Colombia's paper industry is in the offing. During recent weeks the Colombian government revealed plans for the construction of at least three new paper mills. At present the South American Republic has only one mill in operation.

The Colombian government awarded contracts for construction of three paper mills at a total cost of about \$30 million to Parsons & Whittemore-Lyddon, an American firm. One of the mills in the planning stage is scheduled to turn out about 100 tons a day of newsprint. Located at Bogota. this mill was contracted for by Empresa Nacionales de Publicaciones, which owns and operates the government printing and publishing plant.

Two other mills, one making 50 tons daily of white writing and printing papers, the other to produce 100 tons a day of bleached papermaking pulp, will be built near Cali in the state of Valle del Cauca. Backing these will be Industria de Papel S. A., which has been organized with 12 million pesos capital to operate the white paper mill, and Sociedad Colombiana Industrial S. A., which has 40 million pesos capital to operate the pulp mill.

These will be the first newsprint, white paper and pulp mills to be erected in Colombia. They are expected to be in operation by the middle of 1958. The pulp and paper making machinery will be provided by Black-Clawson Co.

Container Corp. of America will be part stockholder in a new mill planned by Colombia's Instituto de Fomento Industrial. The Instituto, which built Colombia's \$20 million steel mill, Paz del Rio, will also be a shareholder in this new mill. In accordance with government policy, the Instituto will sell its shares when public demand for them has been created. Technicians of Ebasco Services in New York have made technical studies for the new mill.

Container Corp. owns Colombia's only paper mill to date, Carton de Colombia, S.A., at Cali. It started late in 1952 with a new 162-in. Pusey & Jones paper machine and a small cylinder board machine 96 in. in

#### COLOMBIA—IMPORTS (In thousands of short tons)

	cetate- Rayon Pulp	Paper Pulp	News- print	All Paper
1946	 1.8	0.2	11.2	27.5
1948	 2.4	0.2	15.5	35.3
1949	 1.2	0.2	13.3	40.7
1950	 2.6	0.2	20.9	54.0
1951	 N.A.	N.A.	25.4	N.A.
1952	 2	1	28	N.A.
1953	2	7	20.4	63.3
1954	 3	18	21	65
1955	 3	20	22	68

width. The Fourdrinier machine makes 24,000 tons of paper a year and the cylinder machine produces about 40 tons a day. At present Container Corp. plans to increase output at this mill about 50%.

#### **VENEZUELA**

Population: 5,300,000. Per capita paper consumption: 8.3 lbs. Paper production: 10,000 tons Paper imports: 58,759 tons

Caracas

Venezolana de Pulpa y Papel, C.A., the big new mill expected to produce about seven tons a day of bagasse pulp and 15 tons of paper, is nearing completion and will add materially to Venezuela's present production of 10,-000 tons a year. This mill will make bagasse paper for packaging and cement bags and may eventually produce printing paper.

Of the country's four producing mills, Industrial Del Carton, C.A., is the largest. It has a cylinder and a Fourdrinier machine and makes about 25 tons a day. Venezolanos, Papeles, C.A., with two Fourdriniers and two Yankees, is making about 20 tons of wrapping, napkin and towels a day. Another mill, Fabricia de Papel de Maracay, is making about 125 tons of tissue a week and another smaller mill produces 18 tons a week.

Best location for integrated pulp and paper mill operations, according to recent surveys, is said to be in the vicinity of San Felix along the Bolivar River, near virgin forest.

#### **URUGUAY**

Population: 2,530,000. Per capita paper consumption: 46.4 lbs.
Paper mills: 5
Paper production: 35,000 short tons Paper imports: 26,500 short ton

Montevideo

Uruguay, with five paper mills, has the highest per capita paper consumption of any of the South American countries. At present it is producing around 35,000 tons and importing another 26,500 to fill its needs.

Uruguay has three major paper mills, Fabrica National de Papel, which has three Fourdriniers and produces 50 tons of paper and 20 tons of straw pulp a day; Industria Papelera Uruguaya S.A., which produces about 8,000 tons a year with its three Fourdriners and one cylinder machine; and Pamer, Papelera Mercedes S.A., which has two Fourdriniers and produces about 22 tons a day. Two other small mills produce about 100 tons a month each.

## WHY

# do so many users choose this system of winding?

CAMERON'S TWO DRUM SURFACE WIND SYSTEM with automatically counterbalanced DRIVEN RIDING ROLL

Both of the machines below employ the Cameron winding system illustrated.



IMPERIAL high speed mill type winder. Speeds up to 7000 fpm\*. Up to 72" rewind capacity. Built in widths to suit requirements.



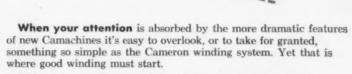
**CAMACHINE 400** versatile slitterrewinder for finishing rooms and converting plants. Speeds up to 1000 fpm'. Maximum rewind capacity 30". Widths 32", 42", 52" and 62".

#### DIFFERENTIAL WINDING

For off-caliper webs such as some laminated or wax coated papers, a Cameron duplex winder using the differential winding system is recommended.

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AA-316



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Ask why Camachines are chosen to serve the world's fastest papermaking machines on all types of paper, from the lightest weight to the heaviest board. And in finishing rooms and converting plants, too. A big part of the answer is right there in Cameron's two drum surface wind system with automatically counterbalanced driven riding roll.

To get off to a good start . . . and to stay ahead . . . ask for the winding system that has successfully served thousands of users through years of high-speed, low-cost dependable production. Call or write to Cameron today for complete technical information.



\*Speed depends on characteristics of material, strip width and roll diameter.

#### and you'll wind up with CAMERON

CAMERON MACHINE COMPANY, 61 Poplar Street, Brooklyn 1, N. Y.

## Another Sandy Hill Success Story



heavy water leaf paper. Fourdrinier, press and reel are capable of exceeding that capacity.

The MULTIPLE MANIFOLD HEADBOX insures the most precisely uniform distribution of fiber in the pond to give the best possible profile across the machine.

The FOURDRINIER handles drainage and vacuum extraction of 8,000 g.p.m. of fiber carrying water.

PRESSES are designed for maximum nip pressures of 1,000 lbs. per inch of nip.

DRYER SECTION has 60 five foot dryers mounted on anti-friction bearings.

REEL is a board type to handle efficiently the heavy water leaf product. Starting position is equipped with a clamping device hydraulically loaded, and the final reeling pressure is controlled by hydraulic cylinders.

Sandy Hill can help YOU step up production, economically . . . consult us,

The Sandy Hill Iron & Brass Works HUDSON FALLS, N. Y.

Serving the Pulp and Paper Industry Constructively Since 1858

#### BOLIVIA

Population: 3,100,000. Per capita paper consumption: 3 lbs. Paper production: 800 tons Consumption: 3,917 tons

La Paz

Bolivia lies at the edge of the Andes and its chief topographical feature is its famous central plateau, over 500 miles long and 12,000 ft. in altitude. About 50% of the population is dialect-speaking Indians and only 13% is white

At present it has one paper-producing mill, Fabrica Y Manufactura de Cartones y Taleres Litograficos, which turns out some 800 tons a year of various types of paper.

## PERU Newsprint Mill a Reality; Grace Expansion Continues

Population: 8,714,000; Per capita paper consumption: 7 lbs. Paper mills: 6

	1954	1955
Paper production	27,500	29,820
Pulp production	13,000	13,000
Newsprint imports	12,000	14,500
Pulp imports	5,500	9,500
Principal imports from Sweden, Norway, U.S.		Finland,
o medeli, itormay, olo	** **	Y

The big news in Peru this year is that the \$11 million newsprint mill, announced as a possibility in the 1955 PULP & PAPER World Review, will be financed by Peru's Farm and Agricultural Development Bank.

The mill will be located at Iquitos, on the Ucayli River, with an alternate site at Pucallpa, also on the Ucayli. Technical studies on the project have been completed and the plant will probably have a capacity of 18,000 tons—enough to satisfy the demands of the Peruvian news industry.

W. R. Grace & Co., which has been manufacturing paper from sugar cane bagasse for the past 17 years in Peru, reports a new process for making a better grade of pulp. This radically improved continuous process for the production of pulp will replace the present batch process at Grace's bagasse paper mills. Clarence Birdseye,

PERU—IMPORTS
(In thousands of short tons)

		und-	Chem. Pulp	News-	All
1947		0.2	2.4	7.4	11.4
1949	 	0.02	6.8	6.3	20.6
1950	 	0.8	7.9	9.0	20.9
1951	 	0.5	6.8	11.7	23.1
1952	 		10	11	14
1953	 		13	12	15
1954	 	2.5	3	12	15
1955	 	2.8	4	14.5	16

noted inventor, helped develop the new papermaking process.

Peru's six paper mills (including the Grace mills) now provide nearly 70% of Peru's paper needs. Its 8,714,000 people have a per capita paper use of about 7 lbs. at present. Nearly 30,000 tons of its annual consumption of 42,000 tons of paper and board, is made at home. At present, Peru imports 14,500 tons of newsprint—its total consumption. Its principal imports are bleached sulfite woodpulp (used principally for rayon) which comes from the U. S., and unbleached sulfite from Sweden, used for mixing with bagasse.

Grace & Co. started its mill in 1939. Initial production was 3,000 tons a year. Today it is 20,000 tons yearly. A \$1.5 million expansion includes a new, modern 110-in., five cylinder paper machine made by Sandy Hill Iron and Brass Works. It is expected to add about 12,000 tons a year to the output here.

**PUERTO RICO** 

Population: 2,210,000. Per capita consumption of paper: 10 lbs.
Paper mills: 2. Bagasse pulp mills: 2
Paper production: 24,000 tons.
Bagasse pulp production: 12,000 tons

San Juan
This island has two mills; one of
these had considerable assistance in
construction in recent years from
American engineers and supplies. This
is Portorican Paper Products, Inc.,
with Robert Blum as chairman and
Lewis Ferre as president. It makes
bagasse pulp in one digester and
about 60 tons a day of various grades
of board on a cylinder machine. Ross,
Shartle, Downingtown and Noble &
Wood equipment is used.

Borinquen Pulp & Paper Mills is headed by George Leitner and has a Yankee Fourdrinier and cylinder and two bagasse pulp digesters, making bleached and unbleached, about 25 tons a day in all.

#### **ECUADOR**

Population: 3,570,000, Per capita paper consumption: 6.9 lbs. Production: 350 tons Consumption: 11,928 tons

Quito
An integrated pulp and paper mill
at Latacunga is near completion now
—Ecuador's second such industry.
When completed, it will produce
3,000 tons annually, mostly wrapping
paper. The sulfate process will be
used in pulping but the raw materials
are still undecided.

Ecuador's first paper mill is small,

turning out only about 400 tons of paperboard a year from waste.

Most suitable wood for the new mill would probably be guarama (called cetico in Peru) which has been successfully tested for chemical and mechanical pulp in France and England.

#### DUTCH-FRENCH GUIANAS

Populations: French Guiana, 29,000; Dutch Guiana, 230,000. Per capita consumption of paper: 3 lbs.

Paramaribo, D.G.

The Dutch Guiana (Surinam) Forestry Service has been planting pinus Caribeae (slash pine) in some of the savannah areas of this country with the idea of developing a woodpulp industry. Only 97 acres have been planted so far but results have attracted attention of N. V. Van Gelder Zonen, largest pulp paper company of the Netherlands.

The Dutch firm looks on this as a possible future source of supply and is ready to finance a much bigger planting and operational project, investing more than \$260,000. The government is reserving 8,400 acres. Both pulp and paper may be made.

#### **PARAGUAY**

Population: 1,530,000. Per capita consumption: 3.6 lbs. Production: 480 tons roofing board Imports: 2,246 tons

Asuncion

Domestic consumption in Paraguay, one of the two inland countries of South America, is said to be too small to support a paper mill. There is, however, a roofing board mill, Papelera Paraguaya, which produces about 450 tons a year.

There is a potential here, though, for Paraguay is one of the best watered countries in the world and about 60% of its total area is covered with virgin forests. The entire paper consumption of this country is only 2,246 tons a year.

240 tons a year.

#### **PANAMA**

Population: 864,000. Per capita paper consumption: 20.2 lbs. Paper production: none Consumption: 8,727 tons

Because of the large percentage of white people in this small Central American country, paper consumption is higher than most of the republics—20.2 lbs. But since only five-eighths of the country is inhabited and the population is very low, chances of a paper industry here are limited.

#### **GUATEMALA**

#### Production Outlook is Good, Corrugating Machine a Success

Population: 3,200,000; Per capita paper consumption: 8 lbs.

	1953	1954	1955
Paper Production	350	500	700
Straw and other pulp	)	500	700
Paper imports		3,000	7,000
Paper exports			100
Principal paper grad	les mad	le: Nev	sprint.

kraft, sulfite, book and writing, paperboard. Principal paper imports from: U.S.A.,

Finland, Sweden
Principal paper exports: El Salvador

Guatemala City

A major stride in paper production in Guatemala was made in 1955 with the installation by Cartonera Centroamericana S.A. of a corrugating machine.

Young Guatemalan industrialist, Minor R. Keilhauer, wrote PULP & PAPER that most of the 9-point and .016 board will be supplied to the new machine by his pulp and paper mill. The president of Cartonera Centroamericana is Arthur Melby and most of the capital is Guatemalan, plus American capital.

Capacity of the new machine, said Sr. Keilhauer, is 500 tons a month. He said the machine will operate on a 24-hour schedule.

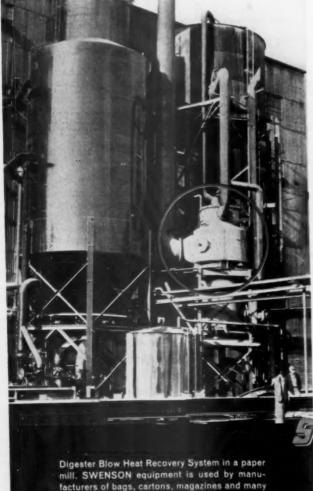
Cartonera Centroamericana S.A. has increased the quality of products considerably since it started up in April. Recently on a bid put out by the Government Printing Press, the plant won a manila board contract from 17 dealers representing foreign firms.

Said Sr. Keilhauer: "Because of the

fine outlook, not only for Guatemala but also for all of Central America, there is no doubt that the demand for paper and board products will increase rapidly in the near future."

This is a fine recovery from last year, when the mill operated by Sr. Keilhauer was closed most of the year and then only was able to operate at 15% capacity when it did start up.

Sr. Keilhauer invested over \$1,000,000 in his lemon grass paper mill. The only stories ever published in this country about his company—Los Cerritos, have appeared in past years in PULP & PAPER. His purpose was to utilize lemon grass residue from his oil process plant. The lemon grass is cropped four times a year with machetes for the oil plant. An American cylinder machine, a Combustion Engineering boiler and other equipment were bought in U.S.A.



other forms of paper.

### Hot Water Produced at Lower Cost!

High temperature water for pulp mill operation can be produced at lower cost with the SWENSON digester blow heat recovery system. The use of a surface type condenser provides clean hot water through the recovery of heat from the vapor released when blowing digesters. A centrifugal separator integral with the surface condenser removes liquor and pulp entrained in the blow vapor.

The SWENSON heat recovery system is designed on a digester basis — thus modifications are not required in future mill expansions with the same digester conditions. Automatic operation synchronized with the blowing cycle provides hot water at constant flow and temperature.

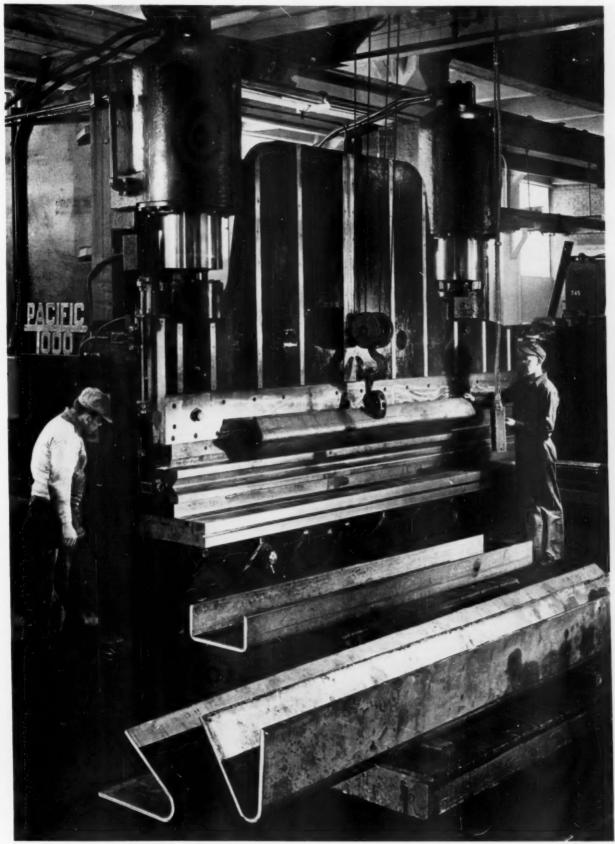
Send for full details on the SWENSON digester blow heat recovery system!

SWENSON EVAPORATOR COMPANY 15632 Lathrop Avenue, Harvey, Illinois

A Division of WHITING Corporation

Phoved Engineering for the Phocess Industries

Since 1889



TORKEL KORLIN



#### 1000-TON BRAKE

The photograph on the preceding page shows the 1000-ton hydraulic press brake in Beloit's Welding Department.

One-inch-thick steel stock can be formed by this brake, holding tolerances of five thousandths of an inch. The brake is shown completing a section of press framework. Doctor backs, in the foreground, are formed and ready for the next step in fabrication. A variety of specialized welding and fabricating equipment is found in Beloit's welding department—the press brake, powerful hydraulic straighteners, and a continuous welding machine capable of handling weldments up to 65 feet in length.

your partner in papermaking

BELOIT PAPER MACHINERY



WHEN YOU BUY BELOIT ... YOU BUY MORE THAN A MACHINE!

#### **CUBA**

#### Champion Starts Up Converter; New Bagasse Mill Slated

Population: 5,500,000. Per capita paper consumption: 69 lbs. Paper mills: 3

(Short tons) 1954 1955		
	40,000 $118,222$	
22,000	40,000	
8,800	10,200 20,000	
	1954 37,300 102,181 22,000	

Havana

Cuba's paper industry got a double shot in the arm this year, first from the startup of Champion's container-board subsidiary, Envases Perga de Cuba, S.A., and second, from the announcement that the Export-Import Bank of Washington will loan a Cuban papermaking company \$1.5 million to build a hardboard mill.

Of the two, the second is perhaps the most important. The new mill, which will be built by Compania Cubana Primadera, S.A., will be the first to utilize bagasse to make hard board. In the past, only a low-density soft board and insulation board was made from the sugar cane by-product. Using a new process, the \$3,670,000 mill will make all grades of building board, tileboard and decorative panel.

This new company was formed from the aegis of Wood, Struthers & Co., New York investment firm, and Francisco Sugar Co. of New York.

Perga de Cuba, Champion's milk carton subsidiary, formed with Champion and Cuban capital, uses pulp from the No. 13 machine at Champion's Carolina Division. Products from this new mill are going, at present, to a Cuban dairy—the first to use paper "milk bottles."

Other news from Cuba was also good. The country's paper consumption rose this year to 69 lbs. per person. Last year it was only 58. And a newly announced mill, scheduled for startup in 1957, will produce newsprint in Cardenas, Matanzas province, from gran (wheat) fiber.

MOST CHEMICAL PULP IM-PORTED . . . Its three other mills, meanwhile, continue producing sulfite and kraft papers. The mills, Papelera Cubana, Papelera Moderna and Papelera Rio Verde, S.A., use wood-

#### CUBA-CONSUMPTION

	1954	1955
Newsprint	(Short	tons)
(all imported)	30,800	31,620
Writing and printing	12,100	14,300
Wrapping papers	36,300	42,350
Paperboard	33,000	37,320
Others	27,800	32,500







A MAN WITH A MISSION. ARMANDO CHAVEZ CLAVERO, of Cespendes 45% St., Sagua La Grande, Cuba, and his associates are eager to find some use for what they call a new pulp material. They have an experimental operation. These pictures show the fibrous material, how it is transported by oxen, but there is also a McCormick Farmall in the picture below. The raw material is a type of palm, called "sago." They have made a crude mechanical pulp and a powdery material for pulp molding from it. Samples of the powder product and pulpboard were sent to U. S. Forest Products Laboratory, Madison, Wis., U. S. A. They got a reply that some of the board was like groundwood, other darker material had properties of straw pulp.

pulp imported primarily from the U. S., Canada and Europe.

Cuba's one rayon-producing mill, La Compania Rayonera Cubana, S. A., is still considering the possibility of using bagasse to produce purified cellulose although nothing definite has been decided about its production. J. de la Roza, inventor of a horizontal continuous digester, who has maintained New York offices, announced in June that he would return to Havana. Sr. de la Roza's continuous cooking process has been used in Cuba.

#### BRITISH GUIANA-BRITISH HONDURAS

Guiana population: 357,000. Per capita paper consumption: 26.1 lbs. Honduras population: 57,000. Per capita paper consumption: 33.7 lbs.

Both British Guiana and British Honduras are Crown colonies and, while paper consumption is high because of the high percentage of white people in both countries, possibilities for paper production in both is limited.

Experiments on the wallaba tree, most important in the Guianas, indicate its suitability for production of sulfate pulp and for production of just about every type of paper except those requiring high strength.

#### **COSTA RICA**

Population: 915,000. Per capita paper consumption: 14.2 lbs. Paper production: 3,000 tons Consumption: 6,490 tons

Costa Rica abounds in excellent forests, lumbering becoming one of the major industries in a country which formerly relied on coffee and tourists for its major income.

A 3,000 ton capacity kraft mill recently started up, using waste manila, hemp and waste from nearby factories. The mill is, however, well on its way toward establishing its own raw material supply from abaca, a fast-growing type of fiber found on plantations. The poro gigante is also acceptable for papermaking, according to recent tests performed in the U.S.A. and France.

#### EL SALVADOR

Population: 2,100.000. Per capita paper consumption: 8.3 lbs. Paper production: 300 tons a year Imports: 8,738 tons

El Salvador is the smallest of the Central American countries, and the only one without an Atlantic coastline, yet it has a paper mill where others of the larger countries do not. The mill, Cia. Casanellas J., produces about a ton a day of cylinder board from a 36 in. cylinder machine.

#### NICARAGUA-HONDURAS

#### Untapped Forest Reserves Offer Future Hardwood Source

Honduras population: 1,610,000. Per capita paper consumption: 4.1 lbs. Paper mills: none Paper imports: 5,304 short tons

Nicaragua population: 1,202,000. Per capita paper consumption: 7.8 lbs. Paper mills: none Paper imports: 4,717 short tons

Managua, Nic. Both Honduras and Nicaragua are thickly forested tropical republics, overlooked for years as a possible source of pulpwood. Of late, however, there have been significant moves for the possible establishment of a paper industry in Honduras and studies are now being conducted in Nicaragua. An American industry expert who has spent much time in these areas, says semi-chemical neutral sulfite pulping may be the answer.

A decree law was issued this year in Honduras appropriating 80,000 lempiras (\$40,000) for use in carrying out a United Nations FAO technical mission to determine the best location for a pulp and paper mill. This study results from a report that Honduras offers the most favorable conditions for the establishment of a pulp and paper industry in Central America. One possible location for a mill is apparently the department (state) of

Yore, where a three-man FAO team has recommended the Honduras government suspend further timber-cutting concessions pending the outcome of its study.

STANDARD FRUIT HAS RE-**SOURCES** . . . The Standard Fruit Co. of New Orleans has large timber holdings in both Honduras and Nicaragua. In Nicaragua it has 150,000 acres in cut-over pine savanna lands.

In the area where Standard Fruit is working in Honduras, pine would probably not be among species available for pulp. However, the railroad passes through large rain forests. Company representatives have indicated an interest in any qualified affiliation for an inspection of the east coast of Nicaragua and the north coast of Honduras as possible paper mill sites.

#### A REPORT FROM NICARAGUA

. A. R. McBirney, of Compania Minera la India, in Nicaragua, reports to PULP & PAPER on the forest reserves in these two countries. It is interesting to note that there are hundreds of species of trees and it is not uncommon to find 50 to 75 minor species and 12 to 15 major species of trees in a particular stand. In one 800 square mile tract, from 4 to 28 cords of wood per acre were observed in studies performed by Mr. McBirney's company.

As he points out, this is a prolific source of hardwood pulpwood. Major problems would be in getting it out of the woods and transporting it to the mill. Even in the "dry season," most of these forests would seem prohibitively wet in comparison to temperate regions. Low labor costs, however, would keep the price of pulpwood down-probably ranging from \$5 to \$10 a cord. Right now, he says, the problem is finding an investor willing to spend the money cruising these forests and studying the paper mill possibilities.

#### **DOMINICAN** REPUBLIC

Population: 2,300,000. Per capita paper consumption: 4.3 lbs. Paper imports: 4,898 Production: none

Ciudad Truiillo Plans for a 8,500 tons capacity bagasse mill to produce 2,500 tons of printing and writing paper (newsprint included) which were laid out in 1952 are still hanging fire in the Dominican Republic. Of its raw materials, only bagasse is produced in enough quantity to support a pulp mill. Per capita consumption is low-about 7 lbs. per

Descriptive



OR any paper that can be wound on a core!



#### SONOCO RODUCTS

HARTSVILLE, S. C.

MYSTIC, CONN \* AKRON, IND. \* LOWELL, MASS. \* PHILLIPSBURG, N. J \* LONGVIEW, TEXAS PHILADELPHIA, PA \* LOS ANGELES, CAL \* GRANBY, QUEBEC \* BRANTFORD, ONT. \* MEXICO, D

DEPENDABLE SOURCE OF SUPPLY

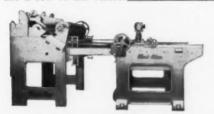
# WHY Clark-aiken

SUSTAINED OPERATION . SUSTAINED ACCURACY

# **CUTTER LAYBOY UNITS**

SHEET PAPER, BOARD, FILM, FOIL AND FABRIC . . . . FASTER, MORE ACCURATELY . . . MORE ECONOMICALLY

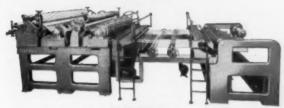
• Designed for the continuous high speed service required in modern paper mills, Clark-Aiken Cutters and Layboys are built to operate as a unit in perfect synchronization. Rugged, alloy cast iron frames and anti-friction bearings throughout provide the rigidity and vibrationless operation necessary to sustained accuracy at high paper travel speeds. But this is only one of the reasons convertors who use Clark-Aiken sheeters enjoy faster, more accurate sheeting at lower cost. Here are a few of the others:



Type D Clark-Aiken Cutter Layboy Unit



Type C Clark-Aiken Cutter Layboy Unit



Type H Duplex Clark-Aiken Cutter Layboy Unit

There's a Clark-Aiken Sustained-Operation,
Sustained-Accuracy Cutter-Layboy Unit with all these
cost-cutting, quality-improving features for every
sheeting need . . . any width rolls from 36 inches
to 240 inches . . . with a layboy exactly suited
to your plant conditions.

If you're interested in getting faster, better sheeting at lower cost, send for the Clark-Aiken Complete

PRECISION SCALE SETTING OF SLITTERS AND JOGGERS permits accurate setting without use of tape . . . insures straight-line travel from slitters to pile.



BALL BEARING SHEARING TYPE SLITTERS cut clean and sharp without dust.



ADJUSTABLE OVERSIZE PINCH ROLL, HEAVY DRAW ROLL guard against web slippage, insure positive feed.



EXCLUSIVE SELF-SHARPENING
"SPIRAL SHEAR" CYLINDER KNIFE
operates with scissors action, insures clean, sharp cuts on any type
or weight of material. Cast iron
cylinder operates against special
steel bed knife and is self-sharpening.



ONE PIECE KNIFE ASSEMBLY eliminates possibility of misalignment when squaring sheet.



ADJUSTABLE SPEED TAKE-OFF TAPES permit synchronization of tape travel with cutting cylinder speed, eliminate tearing and jerking of sheets by contact with knife edge.



LIFETIME TAPES, another Clark-Aiken innovation, extra-wide and heavier than usual narrow tapes, give many times longer service, reduce stretch and need for frequent adjustment.



INDEPENDENT MOTOR-DRIVEN JOGGERS, cam operated, operate at same speed regardless of cutting speed . . . insure perfect piling, undamaged sheets.





957 SPRINGFIELD ROAD

LEE, MASSACHUSETTS



# AFRICA

# SOUTH AFRICA New 120 Tons Per Day Rayon Pulp Mill Starts Operations

Population: 13,400,000; Per capita paper consumption: 51 lbs.

Paper and/or board mills: 9

Chemical woodpulp mills: 4 (including one non-integrated for rayon)

Bagasse mills: 1

 \*Production (short tons)
 1954
 1955

 Paper and board
 85,000
 115,000

 Chemical woodpulp
 30,000
 65,000

 Straw & other pulp
 8,000
 10,000

 Paper and board

Principal paper imports from: U.S., Can-

ada, U.K., Scandinavia

Principal woodpulp imports from: Scandinavia

Principal paper exports to: Rhodesia

## By J. E. HENDERSON

### General Manager, South African Pulp & Paper Industries Ltd.

Johannesburg
With our new mill in Tugela in
Zululand and the increases at our
Enstra Mill, the production of our
company during 1955 was considerably greater than in any previous period.

Last year was the first full calendar year of production for the Tugela mill, which was making kraft liner, fluting, wrapping and bag papers. Part of the furnishings used here is eucalyptus saligna woodpulp (also pine). (Designed for about 80,000 short tons a year.)



THREE NATIONS PARTNERS IN MODERN DISSOLVING PULP MILL. General view of SAICCOR rayon pulp mill, joint Italian-British-South African venture in Natal. The town of Umkomaas is on distant hills.

Further increases in production were made at our Enstra Mill, which installed a new 120 in. Fourdrinier in 1952. Products include the only bleached printing and writing papers made in Africa.

A new Association of Pulp, Paper and Board Manufacturers of South Africa is in the course of formation, with headquarters in Johannesburg. (Machines were added in three other South African kraft and board mills in the past year.)

## By HANS BAARS

# Pulp and Paper Mill Engineer

Cape Town On Sat., Jan. 28, 1956, in sweltering eat, a new 120 tons per day bi-sulfite

heat, a new 120 tons per day bi-sulfite rayon pulp mill of the South African Industrial Cellulose Corp. (Pty.) Ltd. (SAICCOR) was officially opened at Umkomaas, about 35 miles south of Durban near the mouth of the Umkomaas River in Natal.

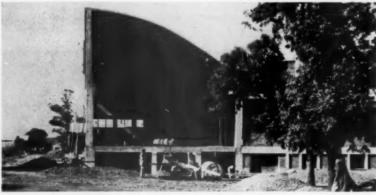
The Governor-General of the Union, Dr. E. G. Jansen, and other officials took part. The chairman of the Industrial Development Corp. of South Africa (IDC) remarked that the warm sunshine of Natal all the year round

makes the eucalyptus trees grow very fast, creating a reliable source of raw material with quick rotation.

SAICCOR is owned by three large companies: British Courtaulds Ltd.. Italian Snia Viscosa (who are also interested in mills in Spain and Mexico) and Industrial Development Corp. of South Africa Ltd. in which the government is the only shareholder. Yet there will be no government interference with the operations of the mill which is entirely left to private enterprise. The IDC was formed in 1940 with an initial capital of £30,000,000 (about \$74,000,000 U.S.) to assist in the development of secondary industries in the country. One of its other interests is a huge oil-from-coal project in Orange Free State. Its share in SAICCOR is approximately \$5,600,-000, and the two other companies also invested \$5,600,000 each, while a loan of another \$5,600,000 was obtained from the British Commonwealth Development Finance Co.

After about two years of building on a 100 acre site, the well laid-out mill began producing rayon pulp in December and is now running at rated capacity. Full production will be exported to the two overseas partners of SAICCOR, to be processed in their rayon factories. The output will amount to about 44,000 tons per year -which is about 3% of the total world consumption of rayon pulp-for which 140,000 tons of wood will be required. Total value of the pulp will mean an annual income of \$7,000,000 in foreign exchange to the Union of South Africa. No plans for rayon manufacture in the Union itself have come to a definite stage.

USES EUCALYPTUS . . . Twelve trainloads of raw materials will be required at the mill each week, seven of which will be pulpwood from bluegum trees (Eucalyptus saligna) growing in Zululand, north of Durban, and to be planted also in the neighboring native reserves. The company owns



SECOND MACHINE FOR ZULULAND MILL. This is machine room under construction for Nyoge Paper Mills, Felixtown. New machine is 138 in. for corrugating, made from cane bagasse, at rate of 40 tons a day.

approximately 38,000 acres of eucalyptus plantations already. Other raw materials required are coal, pyrites, lime stone, bleaching chemicals, etc.

An estimated 18,000,000 gals of water will be drawn daily from the Umkomaas River, and the sand weir, pumping station and water purification plant to handle it cost nearly \$1,000,000 to build. Up to 1,200,000 gals of purified water will be supplied to the town of Umkomaas.

The company has built a railroad spur, 5 miles of tarred roads and many houses for staff and native labor; about 400 natives will be employed. A new native town will be established one

mile from the mill.

General manager of the mill is M. Cantacuzene, a Frenchman, and works manager is W. F. Hastie from England. All technical operators were brought from Italy, and were trained in mills of Snia Viscosa which is do-

ing technical supervision. South Africans will be trained.

Trade mark of SAICCOR shows three hands clasping each other, sign of this unusual international co-operation. A memorial plate bears inscriptions in English, Italian and Afrikaans.

### ANOTHER MACHINE FOR NGOYE

Without such pomp and speeches, the second paper machine of Ngove Paper Mills (Pty.) Ltd. at Felixton in Zululand came into operation in early 1956. The mill processes sugar cane bagasse for the corrugated box industry in the country and for export. The mill started in 1953 with second-hand reconditioned Fourdrinier machine from Austria. The second machine with a wire of 138 in. was supplied by Escher Wyss Engineering Co. of Ravensburg (Germany) and Andritz (Austria). Its 40 tons daily capacity boosted the total daily output to about 60 tons of "Canefibre' corrugating. The old machine will be further modernized.

A MILL IN SWAZILAND . . . The "Patulite" chipwood board factory of Peak Timbers Ltd. in Swaziland started producing in Dec. 1955. The eventual output will be 1,000 tons per month of "Kreibaum" patent boards made continuously by an extrusion process developed in Germany. Some of the board will have hollow cores, and they will all first be used as door fillings in England. Later, the boards may be lined on the site to make them suitable for many more uses. Raw material will be plentiful from the flourishing Patula pine plantations, 60,000 acres of fast growing trees owned by the company, surrounding the mill.

Bowaters (London) representatives recently showed interest in the fast growing pine forests planted in Swaziland by the Colonial Development Corp. of London. A newsprint mill in Sabie, East Transvaal, is being discussed. South Africa newsprint requirements are 60,000 tons a year.

## **EGYPT**

# Dispatch from Cairo Tells of Hopes for Papyrus Paper

Population: 22,000,000; Per capita paper consumption: 11 lbs. Paper mills: 8

 Paper mills: 8
 Straw or vegetable fiber mills: 1

 Production (short tons)
 1954

 Paper
 19,910
 23,000

 Straw & other pulp
 2,200
 3,000

 Paper imports
 80,300
 82,000

 Paper exports
 2,750
 2,700

 Woodpulp imports
 8,800
 10,200

 Principal paper grades made:
 Kraft, sul

Principal paper grades made: Kraft, sulfite, book and writing, paperboard.

Principal paper imports from: Finland,
Norway, Italy.

Principal paper imports from: Finland, Norway, Italy. Principal woodpuly imports from: Scandinavia, Canada. Principal paper exorts to: Sudan, Saudi

abia.

Information on the pulp and paper situation in this country—where the ancient papyrus scrolls were made—was made available here to PULP & PAPER by Dr. Selem Ibrahim, director general, Dept. of Industry, Ministry of Commerce and Industry.

He said there are no woodpulps of any kind made in this land of palm trees, sand and camels. But about 3,000 tons a year of straw or other vegetable fiber pulps are produced. Paper production is about 23,000 short tons. It was 19,900 in 1954, down from 26,400 (short tons) in 1953, said Dr. Ibrahim.

This resurgent nation, at present the leader of the Moslem world, has announced plans for a new carbon paper mill at Alexandria. The pulp will be made of rice straw and other plant fibers and agricultural waste.

The Ministry of Commerce and Industry was planning to send a mission to the U.S.A. to study papermaking procedures. In recent years there were some studies made of making a modern papyrus paper, as that ancient plant is still plentiful. Sandy Hill Iron & Brass Works of U.S.A. assisted. This idea was revived about a year ago with a government plan for a mill with 35,000 short tons annual output. It is still under discussion.

Not only papyrus and cereal straws, but cotton stalks, bagasse and bamboo are plentiful here. The awakening of these nations of the Moslem world may bring rapid changes. Right now it is importing around 10,000 tons of woodpulp from Scandinavia and Canada.

# NORTH AFRICA

North Africa's 60,000,000 people use from 11 lbs. per person in Algeria to less than 1 lb. in other areas.

Paper production: 70,000 tons. Exports of esparto grass to Britain, France and Spain for papermaking: 330,000 tons.

The big question in 1956 in North Africa is the future of France's relations with the French Morocco and Tunis protectorates as well as its colony, Algeria. These are rich sources of a quality papermaking raw material, esparto or alfa grass.

A 27,500 ton chemical pulp mill using esparto was planned in Morocco. A new mill making 26,000 tons a year of writing and printing paper

from esparto in Algiers was being enlarged. Expansion was reported in Tunis. Independent Libya exports

esparto.

Esparto has been used for years, but a new woodpulp mill was coming into production at Sidi-Yaya du Rharb, east of Port Lyautey, French Morocco, in 1956. Using eucalyptus planted in the area many years ago, now rapidly growing, La Cellulose du Maroc is the builder. It plans to make about 16,000 tons annually of cellulose and 14,000 tons of artificial fiber textiles, using eucalyptus now growing on over 75,000 acres, originally planted for shade and surface water retention when the French first founded the Protectorate.

Three mills near Casablanca are making 25,000 tons of paper of various grades, including newsprint.

# EAST AFRICA Mills Planned for Kenya and Mozambique

Total population: 56,000,000. Per capita use of paper: 1 to 3 lbs. Paper production: 10,000 tons. Includes Federation of Rhodesia and Nyasaland (pop. 7,000,000), Tanganyika (pop. 7,500,000), Kenya (pop. 5,454.000), Ethiopa (pop. 10,000,000), Sudan (pop. 8,000,000), Mozambique (pop. 5,000,000).

# By HANS BAARS Pulp and Paper Mill Engineer

Lourenco Marques, Mozambique

In view of new developments I have made a trip here to Mozambique (Portuguese East Africa). There have been serious discussions of mills both here and in Portuguese West Africa.

At present in all of middle and southern Africa, except for the Union of South Africa, there are only two mills in Southern Rhodesia, and one is reported in Tanganyika.

Large parts of the Federation of

Rhodesia and Nyasaland, which was formed as a unit in 1953, are well suited for woodpulp industries and it is hard to believe that uneconomic imports of all its paper will long continue. More than half of Northern Rhodesia is wooded and sawmilling has long been an industry there. Eucalyptus and pine mature in about six years. At Umtali, paper products are being made out of pine. There is chipboard mill at Livingston, Southern Rhodesia.

(A new pulp mill at Lindi, southern Tanganyika, using the baobab or monkey bread tree, is reported. David Oberstein, Cellulose Fibre (Tanganyika) Ltd., is said to have developed the process for its use. Another pulp and paper mill is under construction at Mombasa in Kenya, financed and to be operated by A. S. Columbusemballage, a Danish firm which makes corrugated boxes and packaging materials in 15 plants all over the world. It has had a box plant in Mombasa since 1951.)

# WEST AFRICA Still Talk of Papyrus or Woodpulp in Congo

Population: 51,000.000. Per capita consumption of paper: 1 to 2 lbs.
Production: none. Includes Liberia, Brit.
West Africa, French West Africa, Port.
West Africa, Belgian Congo.

Reports from both the Belgian Congo and from Belgium are that the long discussed plans for setting up a paper industry on Lake Leopoid II in the Belgian Congo are still being discussed. Studies have been conducted aiming to use the papyrus as a raw material. It grows profusely on lake shores of Congoland.

First reports of this project were published in this REVIEW NUM-BER several years ago, direct from the nearby port of Leopoldville. A French banking executive there wrote about it. Navigation is open to Lake Leopold from the port.

There is also discussion by a Brussels bank of a 30,000 ton woodpulp mill to possibly be located on Lake Leopold.

Imports of paper and paperboard into Belgian Congo totalled about 17,000 short tons in 1955.



### OCEANIA

# **NEW ZEALAND** New Tasman Mill Climaxes 30 Years of Creative Forestry

Population: 2,700,000. Per capita paper consumption: 104 lbs.
Pulp paper mills: 6 (2 under construc-

Woodpulp mills: 3 (1 und	der const	ruction)
Production (short tons)	1954	1955
Paper and board	45,106	65,000
Chemical woodpulp	48,500	61,000
Groundwood pulp	33,116	35,000
Paper and board imports	64,278	67,000
Woodpulp imports	5,989	3,300
Woodpulp exports	21,933	25,000
Principal paper grades board, tissue	made:	Kraft,

Principal paper imports from: Canada,

United Kingdom
Principal pulp imports from: Sweden
Principal pulp exports to: Australia

More than anyone else Alex R. Entrican, head of the New Zealand Forest Service has been responsible for the development of New Zealand's newsprint industry, which reached a production basis last year. Mr. Entrican and his officers have devoted 30 years to help bring about this historic enterprise. PULP & PAPER is privileged to publish this report.

### By ALEX R. ENTRICAN Director of Forestry, **New Zealand Forest Service**

Wellington The major development of 1955 was the coming into production of the Tasman Pulp & Paper Co. mills at



ANNOUNCES EX-PANSION. SIR DAVID HENRY, DAVID HENRY, Managing Director, N. Z. Forest Prod-ucts: "Our poten-tial annual crop is 600,000,000 ft. We are only using 2/5 of this. We will in-crease production in all our plants." crease production in all our plants.

Kawerau, representing the climax to 30 years of creative forestry, the culmination of perhaps the most remarkable industrial saga this country has seen.

The pulp mill came into operation in July 1955, the newsprint mill in October, and the sawmill in March 1956. I take great pride in this huge development, which right up to the formation of the company was a govemment-sponsored scheme, nourished by the New Zealand Forest Service to splendid fruition.

U.S.A. MACHINE STARTS UP . The Whakatane Board Mills have commenced operating their new Black-Clawson (U.S.A.) paperboard machine, and they have been successful against appeal in holding their license to manufacture semi-chemical pulp as well as the components of corrugated board.

The preparation for erection of this plant is well advanced and the company hopes to have its unit in operation this year.

N.Z. FOREST PRODUCTS AL-READY EXPANDING . New Zealand Forest Products Ltd. have begun installation of continuous Kamyr digesters to expand their production. [Sir David Henry, managing director of N.Z. Forest Products, announced recently a \$20,000,000 expansion plan to increase pulp production to 100,000 tons annually, kraft paper to 50,000 tons and timber to 120,000,000 bd. ft. Output of fiber wallboard and fiber containers, other company products, will increase accordingly. Present payroll of 2,200

## NEW ZEALAND-PAPER-BOARD

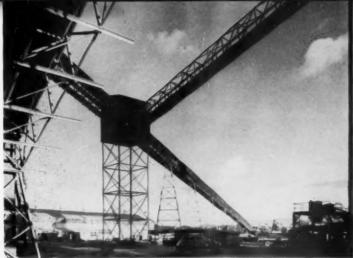
(in long tons)

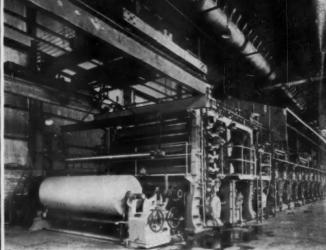
	Wrapping Paper tons	Cardboard tons	Fibre Board sq. ft. (thousand
1940	6,253	6,620	
1945	6,335	14,284	21,958
1947	7.619	13,329	30,416
1950	7,541	17,320	47,766
1951	6,673	16,584	54,430
1952	6.895	16,416	55,164
1953	11,645	15,729	59,786
1954	22,494	17,779	61,850
1055	30,000	25,000	,

### NEW ZEALAND-WOODPULP

fin lang tomal

	(in tor	ig tons)	
	Production	Immonto	Consumed paper and board mills
	tons	tons	tons
1940	5,881	7,090	12,867
1949	21,438	14,523	29,772
1950	23,714	9,598	32,901
1952	26,685	9,454	36,139
1953	34,415	9,412	39,500
1954	72,772	5,347	58,536
1955	87,000	3,300	65,000





A \$20,000,000 EXPANSION PROGRAM for New Zealand Forest Products pulp mill at Kinleith was announced recently by Sir DAVID HENRY, managing director. Picture shows the chip and wood waste conveyor system at the mill.

SPEED RANGE IS WIDE on this Walmsley paper machine at New Zealand Forest Products mill at Kinleith which operates from 100 to 1150 fpm. Kraft paper produced by it has a width of 10 ft.

employes will increase to 4,000 when expansion plans are implemented. The company is at present cutting 600,000 tons of Radiata pine (Monterey) logs annually from its 176,000 acres of forest.

[During the year 1955-56, N.Z. Forest Products alone produced 50,000 tons of chemical pulp for home and export use. Production of kraft paper exceeded 23,000 tons and over 60,000,000 bd. ft. of timber was cut for local and overseas requirements.]

EXPORTS SET RECORD . . . Export of N.Z. Forest Products pulp to Australia reached a new record in 1955, contributing substantially to the company's income. A trial shipment of pulp will be sent to the United Kingdom this year. Up to the present, smaller sized trees could not be extracted cheaply enough for low-cost manufacture, and a close study of widely varied methods is now being made so that the maximum crop of smaller trees can be converted into pulp, lumber, building board, etc.

All these developments have resulted in a corresponding step-up in logging activities in the exotic forests. The pulp and paper industry in New Zealand is designed to supply the needs of this country as well as to supply Australia with a large portion of its requirements for long-fibered pulp and for newsprint. The long-fibered pulp from New Zealand softwoods is complementary to short-fibered pulp produced mainly from Australian hardwoods.

PRODUCTION UP... Sir James Fletcher, chairman of Tasman Pulp & Paper Co., reports that newsprint production during the first quarter of 1956 was less than expected owing to breakdowns. Initial difficulties in the pulp mill have now been overcome. The paper is accepted as equivalent to Scandinavian quality.

During the 1955 financial year New Zealand Forest Products earned \$3,000,000 in overseas exchange with the export of chemical pulp and sawn timber, and savings in overseas exchange by the local manufacture of kraft paper, wallboard, bags and containers, commodities formerly imported, amounted to more than \$8,000,000.

"A recent survey of our forests," states Sir David Henry, managing director of N.Z. Forest Products, "has shown that the potential annual crop is 600,000,000 ft., or about 1,500,000 tons of logs, and at present we are using in our mills about 600,000 tons of logs annually. We intend to increase production in all our plants to utilize this crop."

Sir David looks for a long-term agreement on trade with Australia to stabilize New Zealand's pulp and paper exports to her neighbor within the British Commonwealth.

Important appointment in the industry in recent month was promotion of M. R. Buckett to the office of assistant general manager, N.Z. Forest Products. He was appointed to the board six years ago and has served in various executive capacities for 17 years. J. T. Christiansen has been named general superintendent and J. T. Currie assistant general superintendent, Kinleith Industries.

# AUSTRALIA Production May Reach All-Time High in Both Pulp and Paper

Population: 9,313,000; Per capita paper consumption, 141 lbs.

Paper and board mills;	16; pulp	mills, 5.
Production (short tons)	1955	1954
Woodpulp	176,000	154,000
Paperboard	170,000	143,000
Newsprint	77,000°	65,560
Paper (other than		
newsprint)	119,000	100,000
Paper and paperboard		
*imports (combined)	372,847	274,390
Paper and paperboard		
exports (combined)	2,524	
Woodpulp imports	91,789	79,351
Woodpulp exports	nil	nil
Principal paper grades kraft, sulfite, book, wri		
Leading nations supply Kingdom, Sweden, No * Estimated.		

Melbourne

When the industry's present expansion program is completed, most major types of paper and paperboard required in Australia will be produced within the country. Imports, however, will continue to be necessary to supply the balance of demand in some papers,



IN TASMANIA, PRODUCES 162 IN. WIDE SHEET. British-built Walmsley machine makes 100 tons a day at Australian Paper Mfrs. mill in Boyer. This is one of 5 APM mills. The industry in Australia represents investment of \$32,000,000.

particularly newsprint, and in special types and grades of boards.

Pulp manufacture was initiated in Australia as recently as 1939, although papermaking was one of the country's earliest secondary industries. The first mill was located in Sydney in 1818, only 15 years after the first mechanically powered plant was built in England. Raw material for this and subsequent mills was mainly waste paper and imported pulp.

Today, Australia's pulp and paper industry is operating with a capital of more than \$70,000,000, of which more than \$50,000,000 has been invested since 1945. Capacity for production of wood pulp has increased from 80,000 tons just after World War II to about 180,000 tons a year in 1955, while capacity for paper and paperboard has advanced from 200,000 tons to 375,000 tons over the same period. Expansion projects now in progress are designed to increase capacity to 190,000 tons of woodpulp and 400,000 tons of paper and boards within the next few years.

Australia's per capita use of paper and paperboard is one of the world's largest, and the demand is continuing to increase appreciably from year to

BIG IMPORT ITEM . . . Imports of pulp and paper, which in 1954-55 cost nearly \$80,000,000, represented one of the biggest single items in the country's import bill. Value of newsprint imported alone is responsible for an expenditure of some \$35,000,000.

Rapid as has been the pace of

### AUSTRALIA-GENERAL

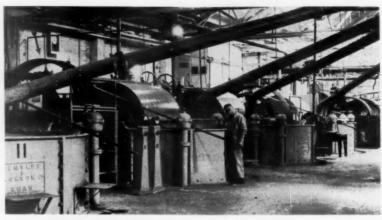
No. of Mills	No. of Em- ployes		
1951 14 1952 14 1953 16	6,336 6,750 7,237	\$23,300 \$24,000 \$35,000	\$37,800 \$42,000 \$70,000
(Latest available)			

## Australia-Paper (in tons)

		Produc	Total All	
	N	ewsprint	Board	Paper & Board
1946-47		31,734	76.563	185,870
1947-48		31,335	83,213	192,320
1948-49		30,260	85,307	193,460
1949-50		30,472	99,519	205,196
1950-51		33,000	103,000	220,000
1951-52		33,000	110,000	235,000
1952-53		70,000	112,000	270,000
1953-54		70,000	120,000	330,000
1954-55		77.000	170,000	366,000

# AUSTRALIA—WOODPULP (in thousands of short tons)

	Ch	emical	Med	hanical
	Prod.	Imports	Prod.	Imports
1949	 63	44	38	3
1950	 68	37	38	1
1951	 75	46	40	2
1952	 77	53	47	6
1953	 70	28	40	1.5
1954	 90	48	64	5
1955	 110	70	66	4
		nvernment an P & P		Pulp Pro-



WHERE STOCK IS PREPARED in one of eastern Australia's five larger mills at Fair-field, Victoria. Mill is controlled by Australian Paper Manufacturers, Ltd. Bentley & field, Victoria. Mill is controlled by Australian Paper Manufacturers, Ltd. Bentley & Jackson beaters shown here are made in the United Kingdom. Mill produces paper oards and wrapping.

the industry's growth, it has failed to match increases in demand. In a statement on the industry's situation recently Senator W. H. Spooner, minister for national development,

"In view of Australia's adverse balance of overseas trade, the replacement of imports by a further expansion of the pulp and paper industry represents a challenge of national importance. Unless this challenge is met, Australia in 1960 will still be dependent on overseas supplies for at least 40% of her paper requirements and the gap between usage and production could widen still further as the Australian economy grows.'

Senator Spooner pointed out that possible avenues for new production existed in several directions, including chemical and mechanical pulp, magazine papers, transparent cellulose paper and tissues.

Even though increases in newsprint production are contemplated by Australian manufacturers, it will probably be necessary to import substantially more than 100,000 tons of newsprint annually.

**EUCALYPTUS MAKES GOOD . . .** 

It had long been believed that the production of satisfactory pulp for paper from native eucalyptus was impracticable, and early proposals to do this were questioned by paper experts from other countries. However, before World War II tests had demonstrated that eucalyptus could make satisfactory pulp, especially when mixed with long fibered softwood pulp from Scandinavia and North America, and Australian pulp mills now produce at the rate of about 160,000 tons a year, mainly from Australian eucalyptus logged in the states of Victoria and Tasmania.

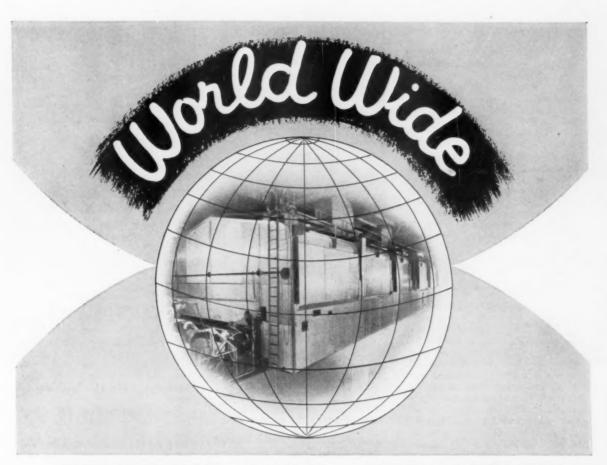
In South Australia, pulp is made from local softwoods.

TWO NEW PLANTS . . . In addition to expansion being carried out at existing mills, two new plants are being built-one at Petrie in Queensland, and the other at Nowra in New South Wales. Paperboard will be made by Australian Paper Manufacturers Ltd., at its new Petrie mill, while the Nowra mill, being built by the (British) Wiggins Teape & William Nash organization, will undertake the manufacture, from imported pulp, of high grade watermarked rag papers and industrial and technical papers, including filter, plastic laminating and blueprint papers, most of which are now imported. The Wiggins Teape project represents the first instance in the paper industry of the migration to Australia of plant, capital and employes from the United Kingdom.

The industry is now operating in all the states, but it is centered chiefly in Victoria, Tasmania and New South Wales, with six mills in Victoria, three in Tasmania, and three in New South Wales and one each in Queensland, South Australia and Western Australia. Nearly 8,000 persons are employed.

There has been a general tendency for mills to specialize between paper and board and also in the types of paper produced. Pulp mills operate in Victoria, Tasmania and South Australia, while Tasmanian mills produce newsprint, wrapping, printing, writing and other papers. Paper mills in the mainland states make wrapping, printing and other papers and paperboards.

PULP USE HITS NEW HIGH . . . Pulp usage in Australia climbed last year to an estimated 220,000 tons,



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vancement in paper making methods over the past quarter century is attributable to the variety of ROSS Air Handling Units which are combined into a ROSS Air System. Ask us to send you bulletins today describing the modern complete ROSS Air Sytems available to the Paper, Board and Pulp industry.



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# OCEANIA

compared with 180,000 the previous year. This figure is expected to rise this year to more than 240,000 tons. Included would be about 2,700 tons of dissolving pulp for manufacture of viscose rayon, about 2,000 tons of woodpulp or cotton linters for production of cellulose acetate, and certain quantities for explosives manufacture. Over 95% of the pulp, however, would be required for papermaking.

If all Australia's paper and board requirements were produced in Australia, the total pulp required would have been over 450,000 tons last year, according to government estimate. If per capita consumption of the different categories of paper and board were maintained, then this total hypothetical demand for pulp by 1960 would be over 500,000 tons. As it may be anticipated that the rising consumption trend for paper will be maintained, it is likely that the total pulp content of all paper and board consumed in Australia in 1960 will be in excess of 500,000 tons.

AUSTRALIA MAKES 75% OF PULP . . . The four Australian pulp mills produce over two-thirds of the pulp required in Australia's paper and board mills, the remainder being imported, chiefly from Scandinavia. In the past, the U. S. and Canada also supplied pulp in large quantities.

About 70% of the pulp used in Australia comes from eucalypt species. About 5% is from Australian softwood, balance being imported.

New Zealand started to supply longfibered pulp from Pinus Radiata (Monterey pine plantations) to the Australian paper industry in 1953,







NEW SOURCE FOR PULP AND PAPER IN BATAAN. These three pictures sent PULP & PAPER by ALEXANDER A. ADAMSON, president of Philippine Paper Mills, show the cane type of raw material he plans to use for his company's new subsidiary, Bataan Pulp & Paper Mills. Machinery has been purchased in U.S.A., Britain and Sweden. This vegetation is called Boho. Its scientific name is Schizostachyum Lumampao. Picture on right shows young and mature shoots.

and it is expected that increasing quantities will become available from that source

Negotiations have been continuing for a rayon pulp mill in Tasmania to be built by a British-Italian group at a cost of about \$20,000,000. This would produce for export.

# PHILIPPINES

Two Mills Start Up This Year; New Cane Species for Pulp

Population: 22,056,100. Per capita paper consumption: 7.7 lbs. Paper and board mills: 5 Bagasse pulp mill: 1 Production In short tons or dollar value:

1955 1954 Paper & paperboard 10,600 Bagasse pulp 4,573 Woodpulp imports 1,431 Paper imports (value) 415 077 000 16,000 1.577

\$12,657,000 \$10,322,000 (value) Principal grades made: Kraft papers, book and writing, paperboard, tissue Principal paper imports from: U. S. A., Canada, Spain
Principal pulp imports from: U. S. A.,
Sweden, Canada Manila

Two new mills are starting up this year in the Philippines, which will bring the total number of paper and paperboard mills in this young republic to seven. There are no woodpulp mills, though this has been considered, and there is one mill using cane bagasse to make bleached pulp and

One of the new mills is Manila Paper Mills, which was planning to start up before July 1956, to make wrapping paper out of imported pulp and local kraft waste paper. The other is Eastern Paper Mills, starting up about July 1956, making tissue paper. Some of the machinery for these mills

is made in Japan.

NEW CANE SPECIE FOR PULP . . One major new project of the future is the Bataan Pulp & Paper Mills, to be built in the Peninsula of Bataan, made historic by the grue-

some march of American prisoners in WW II. It will make pulp from a native cane type of product.

"We plan a 50-ton-a-day mill, making pulp and paper for writing and printing papers," writes Alexander A. Adamson, president of Philippine Paper Mills, Inc. He and his brother, George A. Adamson, of Los Angeles, U.S.A., technical director of the com-pany, toured U.S.A. and Europe last year in search of equipment.

"The machinery for Bataan Mills will be supplied by American, British



PHILIPPINE MILL MAKES BLEACHED PULP FROM BAGASSE. One of first mills to produce bleached pulp from bagasse on a commercial scale is this mill of Cia. de Celulosa Filipinas. Pomilio soda-chlorine process is used to produce fine bank and bond papers. Mill has added power plant, upped producton.

## THE PHILIPPINES—IMPORTS

	Newsprint	(In short Fine & Book Paper	Wood Pulp	All Papers and Woodpulj
1949	30,151	2,564	221	58,796
1950	24,842	4,646	357	61,552
1951	32,046	9.812	510	71,400
1952	16,146	10,561	615	58,982
1953	24,679	8,753	811	51,000
1954	27,000	10,000	1,431	60,000
1955	28.580	14.654	1.577	86.084



# One-minute color change

# adds as much as an hour to this mill's productive day

What could one-minute color control do for you?

For The J. P. Lewis Co., Beaver Falls, N. Y., it means 80% less wet broke on the machine—plus a clear dividend of 40 to 60 minutes' productive machine time per day.

At this mill, groundwood stock of 4% consistency flows into 6,000-gallon beater chests where LIGHTNIN Mixers turn it over rapidly, keeping it uniform.

In just one minute, the LIGHTNINS disperse color additions evenly throughout the stock.

Final color adjustment takes place at the machine chests, also equipped with LIGHTNIN Mixers. Again, the LIGHTNINS bring 6,000 gallons of stock to full uniformity—in one minute.

### No more rethreading

Results: The off - color sheet, previously stripped off the machine as wet broke, has been reduced by four-fifths. The small amount of off-color sheet now produced runs through to the rewind rolls, where it is removed as dry broke. It is no longer necessary to rethread the drying rolls and calendar stack when color is changed. J. P. Lewis gets up to an hour more production per day off the machine.

The LIGHTNINS require only routine lubrication. And chests are easy to clean—have no baffles to cause clogging and rot-

ting; can be hosed down to pump suction without losing a minute's production.

### How to get results

Want to get more out of your chests? Put LIGHTNIN Mixers into them. We can equate what you want done, with the horsepower it takes to do it. You get the exact power-speed combination that matches your needs.

LIGHTNINS are giving good results on stock consistencies up to 6%, in chests as large as 285,000 gallons. Results are guaranteed, unconditionally.

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FAST-FLOWING STOCY tumbles and rotates uniformly, driven by LIGHTNIN four-blade propeller; does not vortex, even in unbaffled chest.





### OCEANIA

and Swedish manufacturers," continued Alexander Adamson. "We will have digesting, bleaching and recovery plants. The raw material (shown in pictures) is a particular specie of the Peninsula of Bataan, which is called 'boho' or its scientific name is Schizostachyum Lumampao."

"As for the Philippine Paper Mills (his mill in Manila), we have installed additional dryers and a No. 2 calender, reel and rewinder as well as complete automation with electronic instruments and as a result we have boosted our production to 35% over the previous year and we expect to reach well over our peak production of 1954. (This mill last year was rated at 25 tons a day of a variety of paper-board and fiberboard products).

"The paperboard industry has now oversupplied the markets," he wrote, "and so existing facilities are turning to specialty boards. This country is still largely dependent on imported supplies."

PULP & PAPER also heard from Compania de Celulosa de Filipinas, now the only pulp mill in this country, through Manuel Rivera, its operations manager. It makes 14 tons a day of sugar cane bagasse pulp by the Pomilio (Argentine-developed) continuous chlorine gas process at Bais, province of Negros Oriental, and makes writing, book and other grades on a 90 in. Fourdrinier and Yankee. They sent much of the new data used in this section, particularly on imports.

TALK OF MORE MILLS... There is still talk that the famous Soriano mining and lumber interests would use hardwood wastes to make groundwood and newsprint, or kraft products. At Davao, two mills are talked about—using hardwoods or abaca waste. Over a year ago Worldwide Paper Mills started making chipboard on a machine obtained in Japan.

A western U.S.A. plywood manufacturer announces a large-scale manufacturing facility is planned for the Philippines.

Everett (Wash., U.S.A.) Plywood & Door Corp., a worker-owned company (believed to be the largest cooperative firm in the plywood industry) located on Puget Sound, says it is going ahead with a \$50,000,000 expansion program. It calls for wood products plants and one pulp mill in the Philippines. Everett Plywood recognizes that high-grade, clear trop-

ical wood is well-suited for face application on cores and backs of domestic species for plywood. Pulp manufacturing facilities in the Philippines would use waste.

# HAWAII

Hawaiian Research Project Continues Pulp and Paper Studies

Population: 500,000; Per capita paper consumption: 166 lbs.

Paper production: 40,000 tons (building board). Bagasse pulp: 40,000 tons.

Paper imports: 52,000 tons Principal paper imports from: U.S., Canada

Honolulu

For over four years now, HSPA, the Hawaiian Sugar Planters' Association, has been investigating the possibilities of converting some of the island's vast sugar cane by-products into paper products. Although some other utilization projects under study by this group have been discontinued this year, studies on pulp and paper will be continued into 1956-57.

This is significant since it shows that Hawaiian researchers are still convinced that such a project is feasible. HSPA is one of the broadest privately-operated agricultural research programs in the world. Four years of intensive research have been devoted to sugar cane by-products. HSPA's decision on whether pulp and paper can be made economically sound in Hawaii will undoubtedly be final.

Rumors aside, Hawaii has not yet reached a final answer on the bagasse-pulping question. G.W. Aljian heads these studies on a "loan-out" basis from C and H Sugar Refining Corp., San Francisco. In a letter to PULP & PAPER, Ted J. Nelson, assistant to Mr. Aljian, writes:

"Actually with four and a half years of extensive research behind us, decisions from this point on will of necessity be strictly on a management level. Which is by way of saying that final pro-or-con announcements will issue from Honolulu."

Last year, the late Miller Freeman, then president of MF Publications (including PULP & PAPER), visited Honolulu and discussed the bagassepaper project at length with Frederick Simpich, Jr., who heads HSPA's business group analyzing cost and marketing data. At the time, the situation was basically the same as it is today: The research group continues to make studies to determine whether they can produce paper and pulp from sugar cane and make money on it. There is



G. W. ALJIAN—He heads research project which will make final decision on a new pulp and paper industry for Hawaii.

one drawback-bagasse now provides an economical fuel for the plantation factories and its use for pulp or paper would require importing other fuels.

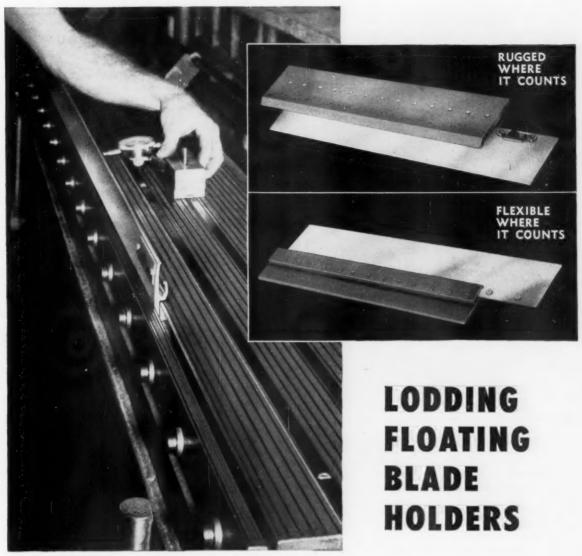
The one million tons of dry bagasse produced every year on the holiday island, if separated, could yield 600,000 tons of fiber and 400,000 tons of pith.

Hawaii is now one of the biggest producers of sugar cane bagasse in the world. Its interest in pulping this fibrous material has ranged from corrugating medium to bleached pulp. The pith is now being mixed with molasses as a low-cost livestock feed and is being produced on a limited commercial basis for use by Island ranchers. Only a portion of the fibrous bagasse byproduct is being used by The Flintkote Co. for manufacturing wallboard.

According to Mr. Aljian, success in pulp and paper, while already known to be technically feasible, now awaits a decision as far as marketing and shipping to markets in Hawaii and the U. S. are concerned.

OTHER PERSONNEL ON PROJECT . . . Mr. Aljian acts under the technical guidance of Dr. L. D. Beaver, who is director of HSPA's experiment station. T. J. Nelson is Mr. Aljian's assistant, and S. B. Knapp, a paper technologist, is continuing his research activities next year in collaboration with mainland paper companies.

Correspondents in over 50 nations or territories around the world sent these reports to the unique 1956 WORLD REVIEW NUMBER of PULP & PAPER.



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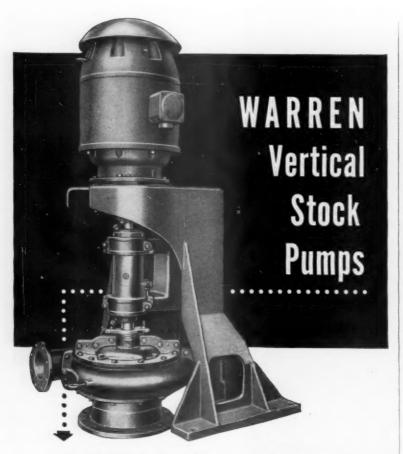
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# WARREN PUMPS

WARREN STEAM PUMP COMPANY, INC.

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# More Paper, Pulp for Packing Food

This report is an annual exclusive feature of the WORLD REVIEW NUMBER-based on a survey by WESTERN CANNER & PACKER, companion Miller Freeman publication of PULP & PAPER.

• The United States food processing industries produced the largest total pack in history in 1955, and promise to exceed even that output in 1956.

The most significant development in food-packing has become the growth of what are called "convenience" foods-products in which the blending and preparing formerly handled in the home kitchen are now performed in the plants. Typical examples are preserved soups, meat stews, nationality foods, bakery products and appetizers. U.S. Department of Agriculture reports that over 500 million lbs. of convenience items were produced by freezers in this country in 1955, and large amounts also were turned out by canners, plus smaller quantities by other types of processors.

There is no immediate ceiling for convenience food production, since the business may be said to have as its potential the tonnage of prepared dishes that is served in all the homes and all of the institutions in America. Restaurants, catering services and other types of food suppliers are joining the ranks of processors to exploit this new field, and an ever-widening variety of products are found on grocers' shelves throughout the country. Growth of these items, therefore, is expected to continue on a major scale for some time to come.

Meanwhile, the conventional foodprocessing business also is growing, although at a less spectular rate. In the canning line, the outturn in 1955 exceeded that of 1954 in fruits, vegetables and many of the non-seasonal products. Glassed food output rose nearly 12%. Frozen fruits and frozen vegetables both were produced in larger quantities this past season than in the year just before. These gains reflect the continuing American practice of buying all products in packaged form, a trend which shows no indication of slackening.

Two food branches, however, dropped in output in 1955. Preliminary figures show that packs of juices — including canned single-strength canned concentrate, and frozen products—fell off slightly. This is expected to be a temporary cir-

### U. S. PROCESSED FOOD PACKS\*

	Canned		Glassed		Foods		Pounds)
	Frusts, Juices Vegetables	n Casas) All Other Canned	Foods (Million Cases)	Fruits, (Mi Vegetables and Nuts	Eggs, Milk	Fruits, Juices, Vegetables	Eggs Fish, Specialties
1936	173	136	79	1,227	122	92	279
1939	191	160	85	1,529	151	213	360
1941	264	223	114	1,675	229	319	484
1943	284	180	188	2,390	455	496	659
1945	321	235	233	1,072	485	749	699
1946	370	235	235	1,762	484	985	717
1947	311	244	240	1.879	464	729	668
1948	300	255	207	1,909	448	1,041	677
1949	308	245	186	1.891	568	1.171	664
1950	328	261	225	1,511	549	1,412	716
1951	373	265	230	1,724	430	1,636	735
1952	350	265	245	1,623	460	1,941	720
1953	345	263	266	1,674	NA	2,287	711
1954	338	274	275	1,692	NA	2,321	845
1955**	351	280	307	1,613	NA	2,615	951

\* Source: WESTERN CANNER & PACKER, Miller Freeman Pubn., affiliated with PULP & PAPER.
\*\* Preliminary. NA: Not Available.

cumstance, providing for a period of consolidation in the growth which has been going on for a good many years.

Declines also appeared in the packs of dried foods—fruits, beans, peas and nuts. Here the cause was in part the result of unfavorable growing conditions, which produced smaller crops. Some parts of the dried food field, however, are feeling the effect of the competition of other types of processed foods, and acreage is being reduced and merchandising efforts expended in moves to keep supply and demand in a proper relationship.

Consumption of fiber packaging

materials undoubtedly reached a new high among food processors in 1955, and promises to go even higher this current year. Not only is the over-all tonnage to be packaged increasing, but the tendency to put up food products in smaller servings, and in units requiring greater amounts of packaging, also is continuing. In addition, the number of consumers is growing, as America's population expands.

The food business, therefore, continues to be an active and expanding market for fiber shipping cases, cartons, bags, pouches, wraps, labels, films and other products of the pulp and paper industry.

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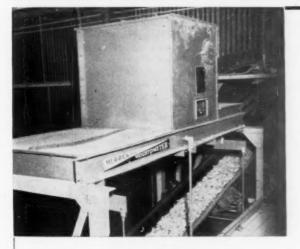
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# INDUSTRY ORGANIZATIONS AND THEIR LEADERS

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DAVID L. LUKE, Jr. (photo), President. He is President of West Virginia Pulp and Paper Co. Assn. headquarters at 122 E. 42nd St., New York 17, N. Y. Exec. Secy.-Treas., E. W. TINKER.



### National Paperboard Assn.

T. N. BLAND (photo), President. He is associated with Fibreboard Products, Inc., San Francisco, Calif. Assn. headquarters at 80 East Jackson Blvd., Chicago 4, Ill. Exec. Mgr., ALBERT W. LUHRS.



Tech. Assn. of Pulp & Paper Industry

KARL O. ELDER-KIN (photo), President. He is Vice Pres. and Gen. Mgr. of Bowaters Southern Paper Corp., Calhoun, Tenn.

Assn. headquarters

Assn. headquarters at 155 E. 44th St., New York 17, N.Y. Secy.-Treas., R. D. MacDONALD.



### American Pulp & Paper Mill Supts. Assn.

MARTIN J. AUCHTER (photo), President. He is Vice Pres. of Mfg., Charmin Paper Mills, Green Bay, Wis. Assn. headquarters at 327 S. LaSalle St., Chicago 4, Ill., Secy.-Treas. HARRY E. WESTON.



American Pulpwood Assn.

L. A. WHITTLE (photo), President. He is Woodlands Div. Mgr., Brunswick Pulp and Paper Co., Brunswick, Ga.

Assn. headquarters at 220 E. 42nd St., New York 17, N. Y. Exec. Secy.-Treas., W. S. BROMLEY.



### American Forest Products Industries, Inc.

W. J. BAILEY (photo), President. He is Vice Pres., West Virginia Pulp and Paper Co., New York, N.Y. Assn. headquarters at 1816 N. Street N. W., Washington 6, D. C. Managing Dir., CHAS. A. GILLETT.



### Assn. of Pulp Consumers Inc.

SAMUEL R. SUT-PHIN (photo), President. He is Exec. Vice Pres., Beveridge Paper Co., Indianapolis, Ind.

Assn. headquarters at 250 Park Ave., New York I7, N. Y. Secy. & Treas., REED R. PORTER.



U. S. Pulp Producers Assn. Inc.

J A M E S L . RITCHIE (photo), Executive Director. Assn. headquarters at 122 E. 42nd St., New York 17, N. Y.



### Forest Industries Council

TRUMAN W. COLLINS (photo), Chairman. He is with Collins Pine Co., Portland 5, Oregon.
Assn. headquarters at Rm. 406, 711-

Assn. headquarters at Rm. 406, 711-14th St., N. W., Washington 5, D.C. Secy., T. H. MUL-LEN.



### Newsprint Service Bureau, Inc.

A. G. WAKEMAN (photo), President. He is President of Coosa River Newsprint Co., Coosa Pines, Ala. Assn. headquarters at 342 Madison Ave., New York 17, N.Y. Secy.-Treas., JOHN J. ZIMA.



Southern Pulpwood Conservation Assn.

N. W. SENTELL (photo), President. He is Chief Forester, Southern Advance Bag & Paper Div., Robert Gair Co., Hodge, La. Assn. headquarters at 1224 Peachtree St., N. E., Atlanta 5, Ga. Gen. Mgr., HENRY MALS-BERGER.



Pacific Coast Assn. of Pulp and Paper Manufacturers

R. S. WERTH-EIMER (photo), President. He is Vice Pres. & Gen. Mgr., Longview Fibre Co., Longview, Wash. Assn. headquarters at American Bank Bldg., Portland 5. Ore. Secy. and Mgr., S. W. GRIMES.



### **National Paper** Trade Assn.

L. M. MURPHY (photo), *President*. He is President of Dillard Paper Co., Greensboro, N. C. Assn. headquarters at 220 E. 42nd St., New York 17, N.Y. Exec. Secy., J. H. LONDERGAN.



Assn. of American Wood Pulp Importers

DR. ALLAN C. HILL (Photo), President. He is Vice Pres. of Mont-morency Paper Co., New York City. Assn. headquarters at 290 Madison Ave., New York 17, N. Y. Secy., PER WESTAD.



Assn.

LEON CLANCY (photo), President. He is President of Clancy Lumber
Co., Decatur, Ala.
Assn. headquarters
at Natl. Bank of
Commerce Bldg.,
New Orleans, La. Secy.-Mgr., S. DEAS.



### Trees for Tommorow, Inc.

FOLKE BECKER (photo), President. He is Chairman. Rhinelander (Wis.) Paper Co. Assn. headquarters at Merrill, Wis. Exec. Director, M. N. TAYLOR.



### Salesmen's Assn. of the Paper Industry

EUGENE D.
HANSOM (photo),
President. He is
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Assn. headquarters
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New York 17,
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### Sulphite Pulp Manufacturers' Research League, Inc.

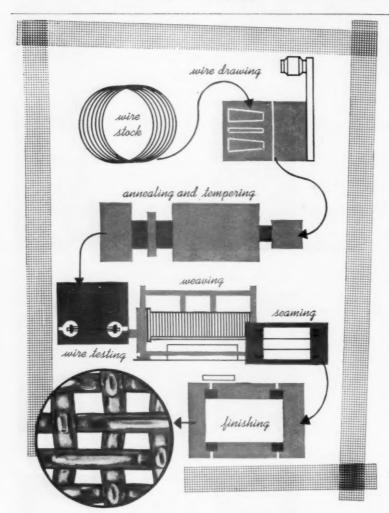
STANTON W. MEAD (photo), President. He is President. He is President of Cons. Water Power & Paper Co., Wis. Rapids, Wis. Assn. headquarters at 1101 E. South River St., Appleton, Wis. Tech. Dir., Wis. Tech. Dir., A. J. WILEY.



### Kraft Paper Assn. Inc.

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RUSSELL FLOM (photo), Gen. Chairman. He is Dir. of Pulp, Paper and Board Sls., Marathon Corp., Menasha, Wis. Assn. headquarters at 122 E. 42nd St., New York 17, N. Y. Secy.-Treas., CHARLES H. LEACH.



## Paper Napkin Assn., Inc.

R. W. BERTRAM, (photo) Chairman. He is Sales Coordinator, Marathon Corp., Menasha,

Assn. headquarters Assn. headquarters at 122 E. 42nd St., New York 17, N.Y. Secy.-Treas., AR-LO WILSON.



# Tissue Assn., Inc.

WAYNE A. BROWN (photo), President. He is Asst. Vice Pres. of Crown Zellerbach Corp., New York 17, N.Y. Assn. headquarters at 122 E. 42nd St., New York 17, N.Y. Exec. Secy., ROSS



### Glassine and Greaseproof Mfrs. Assn.

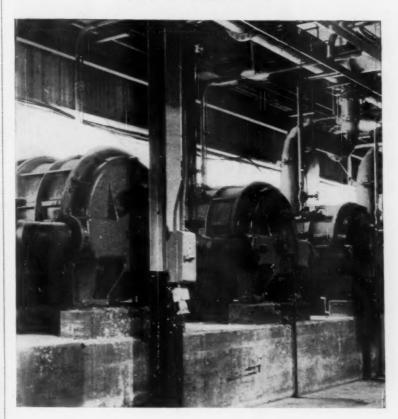
Exec. Sec A. FIFE.

WILFRED A. WYLDE (photo), Chairman. He is Exec. Vice Pres. and Dir. of Deerfield Glassine Co., Monroe Bridge, Mass.

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### Groundwood Paper Mfrs. Assn.

J. R. CRYAN (photo), President. He is Sls. Mgr., Fraser Paper Ltd., New York City. Assn. headquarters at 122 E. 42nd St., New York I7, N. Y. Secy.-Treas., R. E. CANFIELD.



### National Council for Stream Improvement

GEORGE E.
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Chairman. He is
Pres., Robt. Gair
Co., Inc., New
York City.
Assn. headquarters
at 271 Madison
Ave., New York,
N. Y. Exec. Secy.Asst. Treas., RUSSELL L. WINGET.



### Paper Bag Institute, Inc.

T. H. MITTEN-DORF (photo), President. He is Exec. Vice Pres., Hudson Pulp and Paper Corp., New York City.
Assn. headquarters at 369 Lexington Ave., New York 17, N.Y. Dir. & Treas., WILLIAM R. GARDINER.



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Assn. headquarters
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New York 17, N.Y.
Secy.-Treas., G. D.
COOK.



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W. J. DIXON (photo), President. He is Vice Pres. and Dir. of St. Regis Paper Co., New York City.
Assn. headquarters at 370 Lexington Ave., New York 17, N.Y. Exec. Secy., FRANK POCTA.



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W. J. VAN DYCK (photo), President. He is Dir. & Sls. Mgr., Badger Paper Mills, Inc., Peshtigo, Wis. Exec. Secy., IRWIN PEARSON, Neenah, Wis.



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(photo), Chief of
Division. Laboratory is at Madison,
Wis.



### State University of New York, College of Forestry

F. W. O'NEIL (photo), Chairman, Dept. of Pulp and Paper Technology, Syracuse, N.Y.



### Western Michigan College Pulp and Paper Technology Department

DR. ALFRED H.
N A D E L M A N
(photo), Head of
Dept., Kalamazoo,
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### Univ. of Maine Pulp & Paper Foundation

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Staley Mfg. Co.,
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### North Carolina State College, School of Forestry

PROF. C. EARL LIBBY (photo), Head of Dept. of Papermaking, Raleigh, N. C.



# Book Paper Mfrs. Assn., Inc.

A. J. SHARP (photo), President. He is Vice Pres., Kimberly - Clark Corp., Neenah, Wis. Assn. Headquarters at 122 E. 42nd St., New York 17, N.Y. Exec. Secy., MER-RILL R. SMEETH.



1

# Pulp Chemicals Assn.

ALBERT SCHAR-WACHTER (photo), President. He is Vice Pres., Arizona Chemical Co., New York City. Assn. headquarters, 122 E. 42nd St., New York 17.



### Western Forestry Conservation Assn.

JOHN E. LI-ERSCH (photo), President. He is Vice Pres., Powell River Co., Ltd., Vancouver, B.C. Assn. headquarters, U.S. National Bank Bldg., Portland, Ore. Forest Counsel, STUART MOIR.



### National Safety Council

FRANCIS H. WAGNER (photo), Gen. Chairman, Pulp and Paper Section. He is Dir. of Safety, The Mead Corp., Chilicothe, O. Council headquarters, 425 N. Michigan, Chicago 11, Ill.



### Folding Paper Box Assn.

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DR. R. deMON-TIGNY (photo), TIGNY (photo), Chairman. He is Tech. Dir., E. B. Tech. Dir., E. B. Eddy Co., Hull, Que.
Section headquarters at 2280 Sun
Life Bldg., Montreal, Que. Exec. Secy., DOUGLAS

## Newsprint Assn. of Canada

JONES.

ROBERT FOWLER (photo), President. Assn. headquarters at 2280 Sun Life Bldg., Montreal, Que, Secy., J. M. SAVAGE,

## Woodlands Section, CPPA

H. ARTHUR
SEWELL (photo),
Chm. of Exec.
Council. He is
Vice Pres., Woodlands, Ontario
Paper Co., Ltd.,
Thorold, Ontario.
Assn. headquarters
at 2280 Sun Life
Bldg., Montreal,
Que. Manager, W.
A. E. PEPLER.

### Pulp & Paper Research Institute of Canada

LINCOLN DR. R. THIESMEYER (photo), President. Institute headquarters, 3420 Univer-sity St., Montreal, Que.



## Canadian Paper Trade Assn.

Headquarters at 77 York Street, Toronto, Exec. Secy., IVAN MOFFITT.

PULP & PAPER-1956 Review Number



# Here's what stock pump

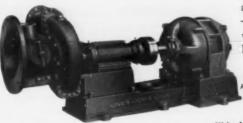
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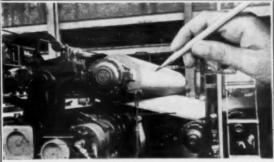
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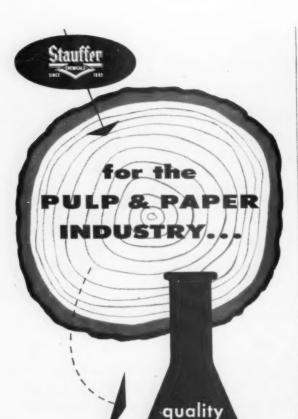
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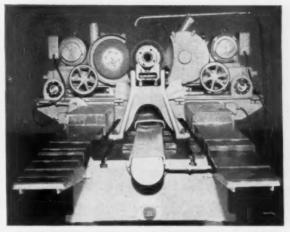
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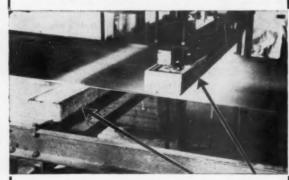
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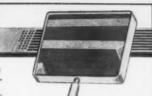
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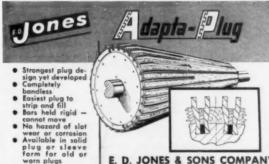
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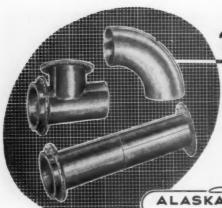
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